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ANOMALIES OF THE KIDNEY PELVIS AND UPPER URETER

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(Read before the Medical and Surgical Association of the Southwest, at the fifteenth annual session, held at Phoenix, Ariz., Nov. 7 to 9, 1929.)

I shall discuss only those anomalies which are produced by aberrant vessels. Their early recognition and conservative surgical relief is most important if we hope to conserve the kidney, and this, therefore, is an appeal to the general practitioner to send us these cases as early as possible. These vessels are known to be present in a very large percentage of patients, Eisendrath and Quain stating as high as twenty-one and twenty per cent.

OCCURRENCE

This high percentage is easily accounted for if we consider the embryological development of the kidney, which undergoes a most extensive change in position in its upward ascent from the bony pelvis to the upper abdomen. This change must carry with it a corresponding change in blood supply derived from higher and higher sources as the kidney climbs up the ladder of the blood supply.

We therefore find various accessory vessels, consisting of (1) upper polars arising from the main renals; (2) upper polars arising from the aorta; and (3) lower polars from the main renal, the aorta, the common iliac, spermatic, inferior mesenteric, and median sacral arteries. Depending upon their embryological development, there may be as many as one to six renal arteries on one side. Anomalous veins occur less frequently than anomalous arteries but are as important in the production of pathological conditions.

It has been observed that the selection of the renal artery is largely a matter of chance. A number of the so-called anomalous vessels may be but the retention of a portion of normal vascular relations of the embryo before the ascent of the mesonephros to the renal fossa. There may be multiple renal arteries and veins of every conceivable type of branching, depending upon the selection of the channels from the periaortic plexus. (Chas. P. Mathe). The persistence of this early blood supply as seen in kidneys retained in the pelvic position, where the renal artery arises as a branch of the middle sacral, common iliac, or inferior mesenteric, is not uncommon.

PATHOLOGY

In a large percentage of these cases, the abnormally placed vessel, in itself, produces no pathological condition. Obviously those supplying the upper pole cannot obstruct the ureter and the presence of an anomalous vessel at the lower pole is not necessarily the primary cause of back pressure. The dropping down of a too movable kidney, carrying with it the ureter, causing it to kink over such a vessel, is responsible for the obstruction which creates the pathological condition and symptom complex to be dealt with. Should infection occur in such a kidney, adhesions may occur between the vessels and the S-shaped ureteral kink, which may become permanent and even result in an inflammatory narrowing of the lumen of the ureter itself. I cannot, therefore, too forcefully urge upon you the importance of early recognition, and surgical relief, of these cases, before the resultant stasis has progressed too far, producing advanced hydronephrosis, calculus formation, and finally complete destruction of the kidney. As stated above, there must be factors other than the anomalous vessel to produce pathology,

as these conditions occur far more frequently in normal kidneys than in those showing signs of back pressure. It has long been recognized that no abdominal arteries are so irregular in their distribution, or present so great a variety of anomalies, as those supplying the kidneys. These vessels vary in size from very small diameter to that of the ureter and supply a part of the kidney varying up to as much as one-half.

Undue mobility of the kidney, carrying the ureter down with it, causes it to sag and come in contact with an anomalous vessel, which acts as a fixed support over which it becomes suspended, causing an intermittent, progressive hydronephrosis, infection, inflammatory changes, strictures, calculi, thinning of the tubules of the cortex and medulla of the parenchyma to such an extent that the kidney may be transformed into a mere shell. The predisposing causes of movable kidney are: the peculiar body form, described by Walkow and Delitzin, in which there is deviation in the anatomical configuration of the posterior abdominal walls, with shallow cylindrical or funnel-shaped paravertebral fossae; loss of security of the kidney due to upright posture; laxness of the general and local renal supports; and the peculiar formation of the perirenal fascia in which the lower portion of the renal loge is open, favoring descent.

The active causes of movable kidney are various acute and repeated chronic traumata.

SYMPTOMATOLOGY

The symptomatology is variable and depends upon the degree of pathology present.

Pain is always present in some degree. It may be sharp, intense, intermittent, or persistent. It usually commences in the lumbar region or upper abdominal quadrant, on the side involved, and may radiate along the course of the ureter to the labia, testis, or thigh. Standing posture and exercise aggravate it, while horizontal and Trendelenburg positions lessen or relieve it. There is generally a dull ache present at all times after the condition becomes well established. Menstruation and lying on the opposite side usually intensify the pain.

Nausea and vomiting frequently accompany the severe attacks, as well as the dull lumbar pain, and may be accompanied by gas, constipation, hyperacidity and progressive loss of weight.

Insomnia, headache, and varying degrees of nervousness are usually present.

Cases uncomplicated by infection experience few, if any, urinary symptoms. With infection, almost any urological symptom, such as increased frequency, burning, nycturia, pyuria, and hematuria, may be present. Dietl's crises are familiar to all of you. When patients have developed these urological symptoms to considerable degree, it is, of course, easy to realize that they need a complete and thorough study, but it is most important to get these patients before such is the case. Renal infection in such cases will not respond satisfactorily to the universally recognized measures; viz., irrigations and dilatations, employed for their relief in cases uncomplicated by such an anomalous condition.

DIAGNOSIS

There is no method of demonstrating an aberrant vessel or of proving definitely that a given case of hydronephrosis is being produced by one. There are, however, symptom complexes which should cause us to suspect such a condition, and, when presented with movable kidney, intermittent regular attacks of kidney pain and demonstrable ureteral kink in the upper ureter, we should consider an anomalous vessel as being a very probable factor in the production of our patient's infirmity. Examination of the patient while standing may determine the amount of mobility but good plain roentgenograms in the dorsal and standing positions are of more value and also aid in the determining of size and shape, as well as excluding stones and enlargement of other abdominal organs. Cystoscopy is indispensable in these cases. An ordinary ureteral catheter usually encounters definite resistance when it passes the kinked or narrowed upper ureter and, likewise, when withdrawing a bulb catheter, a definite hang is elicited at such a point. It is sometimes impossible to pass a catheter beyond the kink in such a case without first placing the patient in the Trendelenburg position, as was true in one of the cases I am herewith reporting. Pyelography should be employed in all such cases. Upright films, with catheter withdrawn, are very essential in demonstrating kinking and narrowing of the lumen of the ureter suspended over an aberrant vessel. Since surgical intervention is to be considered in all these cass, it is not necessary to add that a complete study of both kidneys should be made, which should include a thorough chemical, bacteriological, and functional study of each. From such a study we are able to determine whether the surgical treatment shall be radical or conservative.

TREATMENT

It is, of course, impossible to say that conservative treatment—consisting of wearing a belt, attempts to straighten the kinked ureter by splinting it with a retention catheter, dilatation of the narrowed ureter by

means of bulbs, systematic renal drainage and lavage—ever gives relief in these cases, because, if they are relieved by such measures, we have not proven the existence of an aberrant vessel. These measures should be employed in all such cases presenting themselves early in their course, as well as those who refuse surgical intervention, and, if no relief is obtained, surgery must be resorted to. Hinman and Morrison have demonstrated that hydronephrosis develops more rapidly in the higher obstructions of the ureter; therefore, early operation in such cases is imperative if we hope to save the kidney from total destruction. Surgery in these cases consists of division of the obstructing vessels and connective tissue bands, mechanical straightening of ureteral kinks, or, if the vessel is large and not atrophic, supplying a large portion of the kidney, widening of the ureteropelvic junction, transplantation of the ureter, causing the aberrant vessel to pass on the other side, and, in all cases, fixation of the kidney in place. In most cases, the obstructing vessel may be divided and ligated, as it is often atrophic and enveloped in fibrous tissue. Should the vessel be large and supply a considerable portion of the kidney, we should hesitate to sacrifice it, as Hinman and other workers have proved that there is a complete absence of arterial anastomosis, either intrarenal or extrarenal. This is not true of the venous system, however, and therefore the same caution does not apply to an aberrant vein. Kelly and others have attempted to relieve these cases by simply suspending the kidney, but it has been shown very conclusively that nephropexy alone fails to relieve them, and a second operation has been required, at which time division of the vessel or nephrectomy has been necessary. The narrowed ureter should always be corrected at the time of operation.

RESULTS

Results depend entirely upon how early these cases are recognized and how skilfully handled. Those patients seen early should be completely relieved, those seen late should also be, because they lose the then offending and destroyed kidney by nephrectomy; and the in-between cases will be materially benefited or not, depending chiefly upon the skill and good judgment of the operator.

CASE REPORTS

I have two cases to report in which the condition was definitely one of aberrant vessel, one seen early and the other late in the process of development.

Case No. 1. Hospital No. 3486. Mrs. J. C. G., housewife, age 39, reported to me March 4, 1929, suffering with an attack of severe pain in her right lumbar region and right upper abdominal quadrant. She gave a history of having had these attacks since the birth of her first child, now 18 years of age. She had a great deal of urinary trouble, including urinary infection during the time that she was carrying her second child, now 16 years of age. Following this latter pregnancy, her symptoms became more pronounced and she noted a dull pain in the right lumbar region and right upper abdominal quadrant. This pain was non-radiating in character, and was accentuated by exercise, stooping, and so forth, and, while it was present at all times, she had fairly frequent attacks of a savage colicky nature, Dietl's crisis. The interval of time between these attacks gradually became lengthened until, of recent years, they have been very far apart, perhaps coming on but once a year. These attacks were accompanied by marked nervousness, nausea, vomiting, and some frequency. The right kidney, on palpation, was quite tender, very definitely enlarged and freely movable, dropping below the brim of the bony pelvis. At the first examination, performed March 4, 1929, a No. 6 ureteral catheter passed about two-thirds of the way up the right ureter, where it was obstructed, and I was unable to go beyond this obstruction. At her second cystoscopy, however, performed March 11, 1929, by placing her in a Trendelenburg position, a No. 6 ureteral x-ray catheter passed this obstruction and made a complete loop in the upper third of the ureter before entering the renal pelvis. The left ureter was catheterized with a No. 6 ureteral catheter, without difficulty. Urine from the left kidney was clear and contained no pus or blood; from the right, it was cloudy and contained a large amount of pus in which a mixed infection was found, colon bacilli predominating. Intravenous phthalein appeared from the right kidney in 10 minutes, giving only a trace in 15 minutes. It appeared from the left in 1½ minutes and 45 per cent was excreted in 15 minutes. Pyelogram of the right kidney, taken in upright position, shows a hydronephrotic multilobular kidney in which the secreting tissue has been replaced by cysts, and the complete loop made by the ureteral catheter before entering the renal pelvis, as well as a marked degree of ptosis, the kidney dropping well below the bony pelvis. Nephrectomy was advised and this I did June 29, 1929. At operation, I found a fairly large band of fibrous tissue enclosing an aberrant artery which arose from the aorta to enter the pelvis anteriorly. This was ligated and cut, although it seemed to have completely atrophied. Nephrectomy was performed and recovery was uneventful. This was a case in which the vessel passed anteriorly to the ureter. There was great mobility and rotation of the kidney, the pelvis of which should have slipped over back of the vessel in dropping, but inflammatory adhesions, which had probably occurred early, prevented its doing so. Had this case been properly diagnosed shortly after the birth of her second child, the kidney might easily have been saved.

Case No. 2. Hospital No. 3547. Miss C. L.: Age 18, school girl, referred by Dr. Swackhamer. Reported to me July 22, 1929, complaining of continual dull pain in the right lumbar region, radiating to the right anterior superior spine and occasionally, when more severe, down the right thigh. The pain was accentuated during menstruation periods and by exercise and was not relieved by Trendelenburg or reclining positions. No urinary symptoms, such as frequency, or dysuria, were present. Her symptom complex began 18 months before reporting to me and had been growing steadily worse. After an examination in Colorado about one year

before, she had been advised to have her right kidney removed for a renal tuberculosis. Cystoscopy, July 22, 1929, both ureters easily catheterized with No. 6 catheters. Both urines were clear, containing no pus or blood. Intravenous phthalein appeared from the right in 3 minutes, from the left in 2½ minutes, and in 15 minutes the right excreted 18 per cent while the left excreted 20 per cent for the same interval of time. Pyelogram in upright position on the right side showed a comparatively normal kidney with slight distention of the pelvis and an apparent sharp angulation at the ureteropelvic junction, with narrowing at this point. No ptosis was present, but these findings suggested the possibility of an anomaly here and operation was advised. Her pain was the same except made more severe by pyelography. Operation, July 27, 1929. A small-sized aberrant vessel was found lying in a fibrous band and running from the aorta posteriorly, crossing under the ureteropelvic junction and entering the lower pole of the kidney just below the pelvic junction. This was ligated and cut. It was quite atrophic, being almost a fibrous band. Plastic widening of the ureteropelvic junction was done and the kidney suspended. Recovery was uneventful and a letter received from the girl's mother last week states that she is completely relieved, symptomatically.

Anomalous vessels are present in a very high percentage of cases. They cause no obstructive symptoms and require no treatment in a large number of these. Movable kidney is the primary factor in causing obstructive disease. Upright pyelo-ureterograms are necessary to diagnose the condition. Results from surgical intervention are very excellent when the case is properly diagnosed early in its development and we should, therefore, make every possible effort to recognize these cases early.

SOLITARY CYSTS OF THE KIDNEY

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(Read before the Medical and Surgical Association of the Southwest, at the fifteen annual session, held at Phoenix, Ariz., Nov. 7 to 9, 1929.)

Solitary or benign cysts of the kidney may be divided into two classes: those with clear watery contents, known as serous cysts; and those in which there is an admixture of blood, known as hemorrhagic or hematic cysts.

Large solitary cysts of the kidney are rare, but may be more common than supposed, as they are seldom discovered until their growth makes them apparent or pressure symptoms on neighboring organs manifest themselves. Harpster[1] collected 93 cases from literature and added two of his own. Kairis[2], up to 1926, had gathered 125 cases. Thompson[3], in a review of 12,888 autopsy reports, found a record of this condition in only 32 cases. O'Neil,[4] in going through the records of the Massachusetts General Hospital, found but nine cases. No example of this condition had been seen at the Brady Urological Clinic, Johns Hopkins Hospital, until 1926, when Colston[5] reported an unusual combination of solitary cyst and papillary adenoma in the same kidney.

Of Harpster's cases, forty-one were at the lower pole, eighteen at the upper and seven at the mid-portion of the kidney. The location of the cyst was not mentioned in twenty-nine. Viethen[6], in 1926, and Ludowics[7], in 1928, reported a case of large serous cyst occurring in a horseshoe kidney. The affection appears to be more common on the right than the left side.

The condition is more common in women than in men in the proportion of two to one.

Vonnachen and Sprenger[8] state that five cases of simple cyst in children have been culled from literature, dating back as far as 1861, and add a case of their own. The oldest child was eight years and the youngest one year. With regard to the hematic cysts, Manna[9] gives the age range of reported cases as between sixteen and sixty-one.

ETIOLOGY

Various theories have been advanced to account for the formation of these cysts. According to Virchow, the cysts originate in circumscribed interstitial foci with obstructed urinary canaliculi. Both Albarran and Kuster subscribed to the theory that there is no fundamental difference between the genesis of simple cysts and polycystic kidneys; that both are due to cystic dilatation of dispersed tubuli of the Wolffian body. However, the greater frequency of polycyst in kidneys, the fact that they are usually bilateral, the urinary changes and heredity are against this theory. At present the question has been narrowed down to two hypotheses, retention and congenital disturbance of development. Ruckert declared that "all cysts are caused by inhibition of development in the earlier or later stages of fetal life." Dunger and Lubarsch were equally confident that the changes observed were wholly of an extra-uterine nature. Kampmeier's studies led him to believe that in every normal human being there is a certain period of fetal life in which numerous cystic urinary tubules survive the normal fetal period. If the abnormal growth is confined to one tubule, a solitary cyst results. With the present knowledge of these cases, it is impossible to say that one or the other theory is right, but the consensus of opinion seems to favor the congenital theory.

Offhand, it would seem easy to define a hematic or hemorrhagic cyst as a serous cyst into which blood has extravasated. The theory that an inflammatory process is responsible for hemorrhagic cysts does not hold good, as the histologic findings do not bear it out. That trauma, slight or serious, evident or unobserved, may be the cause, has its advo-

cates. The possibility of a hemorrhagic infarct, the rupture of minute aneurysms or congenital fragility of the blood vessels is open to discussion. Another theory is that hematic cysts may originate in a cavernous angioma, pass through the stage of hemangioma, and become cystic if the contained blood is not too rapidly absorbed. These large collections of blood remain liquid in the center, because they are inclosed in a sort of capsule with a smooth surface. Why an angioma becomes cystic is not explained. Krogius[11] reports a case of hematic cyst in which the sac contained ten liters of thick, chocolate brown, foul smelling fluid, containing pus cells and red blood cells, masses of detritus and cholesterin crystals. Offensive gases were given off. The medial wall of the cyst inclosed a rudimentary kidney connected with a thin ureter.

Renal elements including glomeruli and tubules were found in the cyst wall. The innermost layer was of granulation tissue covered with epithelium. Inflammatory changes were found throughout the cyst wall. He ascribes the condition to faulty development in fetal life between the primitive renal pelvis and the metanephrogenous tissue. Hemorrhage had occurred and the cyst cavity formed. This hypothesis seems to be confirmed by the presence of many vessels in the cyst wall and by the healthy condition of the remaining renal tissue. "Unfortunately, histologic examination gives very little information. In those ceses where it was made, the cysts were formed by connective tissue made up of stratified fibrous lamellae with some elastic fibres in the middle of which were veins, arterioles, hemorrhagic foci and sometimes bits of renal substance" (Manna[5]).

According to Young[11], the serous cyst is lined with a delicate epithelium, either cuboidal or flat. There is no fibrous capsule, the epithelium lying on basement membrane about the same thickness as that of a normal tubule and directly in contact with the parenchyma.

The contained fluid of the simple cyst is yellow in color, alkaline in reaction. Sugar, uric acid, cholesterin crystals, leucin, and sometimes phosphates are found. The albumin and urea are in much greater concentration than in the blood.

In the hematic cysts the wall is always denser than that of the serous cyst, even reaching one centimeter in thickness. The densest part is nearest the kidney substance. There may be small hemorrhages between the layers. Picque, Souligoux and Gouget observed fatal hemorrhages when the clots were detached during operation. The contents are an important feature of these cysts, consisting of a chocolate colored fluid containing old and recent blood, free and adherent to the wall. Manna states that the reaction is neutral or slightly alkaline. The precipitate obtained with alcohol shows the reaction of mucin, bile and pseudomucin. Cultures are usually sterile.

Wulff is the only observer to report any connection between the cyst and the calices, having seen one case with a pin point opening into the renal pelvis.

SYMPTOMS

Abdominal swelling is usually the first thing noticed by the patient. As the tumor increases in size, there are other symptoms caused by the encroachment of the mass on neighboring organs. The commonest of these is pain, either acute or dull and dragging, generally felt in the lumbar region and radiating toward the pelvis and thigh and into the genitals. Incomplete intestinal obstruction will cause colic, vomiting and constipation. Frequency of urination and hematuria are very rare.

DIAGNOSIS

The diagnosis of solitary cysts, either simple or hematic, is extremely difficult and rarely made prior to operation. This is due to the absence of characteristic symptoms and also to the fact that practically all of the parenchymatous organs of the abdomen may be the site of conditions simulating this trouble. Mendelsohn states that in 58 cases operated upon, the preoperative diagnosis was correct in four. Harpster, with a larger number of cases, gives seven correct preoperative diagnoses. As there are no characteristic symptoms pointing to the kidney, the diagnosis must be made by exclusion. Inspection shows a mass of varying size occupying one or other upper abdominal quadrant and extending to or beyond the median line. The contents of the cyst are under such tension that it feels like a solid body, although there may be an indefinable something that will convey the idea of fluid to the examining fingers. Felt through the abdomen, the contour is rounded, the surface smooth. As a rule the colon lies in front of the mass, but if the tumor is of sufficient size, it may displace the colon toward the median line or beyond. If the cyst is in the right kidney, it is obscured by the liver, and if this organ is also cystic the diagnosis is impossible. Hydatid cysts of the kidney can only be differentiated by the finding of the parasitic hooklets in the urine and by the blood picture. Polycystic kidneys may be eliminated by careful anamnesis, the bilaterality of the affection,

the urinary findings and pyelography. There may be a history of heredity.

In women, if the tumor be large, the usual diagnosis is that of ovarian cyst. Careful examination will reveal the starting point of the cyst and this coupled with a history of menstrual irregularities and the facies ovarica ought to turn the investigation to other organs.

Cystic disease of the spleen, both parasitic (hydatid) and nonparasitic is to be taken into account in left sided growths. The principal symptoms of non-parasitic splenic cyst is pain, at times sharp, at others dull and dragging. As the growth progresses, pressure symptoms on neighboring organs will appear. The enlargement of the spleen is usually felt to the left of the midline, but may be dislocated to any part of the abdominal cavity. In hydatid cysts of the spleen, the development posteriorly gives rise to fluctuation in the lumbar region.

Cysts of the liver show bile salts in the urine and jaundice. In cystic disease of the gall bladder, the tumor is movable and there is the typical pain radiating to the shoulder. Biliary pigments may be present in the urine. The Graham test will be found useful.

Cysts of the omentum, although very rare, may be taken into account.

Both parasitic and non-parasitic cyst of the pancreas may grow to considerable size. The tumor is immovable. When the cyst develops between the stomach and colon, an area of dullness is found that is never present in renal cyst. Steatorrhea, glycosuria and depletion are usually present.

Hydronephrosis and pyonephrosis may simulate the solitary cyst, but the history of the case, the constitutional symptoms, and the urinary findings combined with pyelography should be sufficient to distinguish between them.

The following case is one in which the diagnosis was partially made, inasmuch as the tumor was definitely connected with the kidney.

Male, aged 21, Mexican laborer, was referred to Dr. George Turner early in March, 1929, for examination of a mass in the abdomen. A firm, rounded, smooth mass was felt in the upper left quadrant, extending from beyond the costal margin to about two inches below the navel. Laterally it passed the median line. There was no tenderness on palpation. The tumor gave the impression of solidity, but something suggested to the touch that fluid was present. The mass was located rather lower than a tumor of the spleen is usually found. Dr. Turner made a Wassermann and urinary examination. The patient was given a barium meal and the stomach and intestinal tract were studied. On account of the location of the tumor, he thought at once a splenic cyst. The stomach and small intestine were displaced to the right and forward while the splenic flexure of the colon was displaced downward and past the median line. None of the symptoms of splenic umor was present, so the next organ to be investigated was the kidney.

The history of the case was that about six months previously he had noticed the swelling of the abdomen. There was no pain, but he said it interfered when he stooped over. He is constipated.

About four years before, he had been run over by a truck, the wheels passing across the abdomen at the level of the kidney region. This accident put him in bed for a month with pain in the kidney region. At no time did he have blood in the urine.

On March 15th, he was cystoscoped and pyelogram made. A No. 6 ureteral catheter passed up the ureter on both sides without meeting obstruction. The flow of urine and the excretion of pathalein was normal on the right side, but the urine was greatly diminished on the left and the excretion of dye was the merest trace in 15 minutes.

Sodium iodide solution was injected in the left catheter, but, as will be seen from the pyelogram

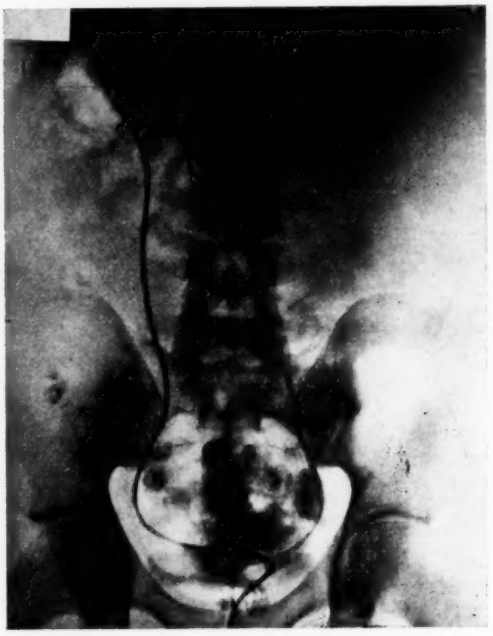

Fig. 1. Pyelogram

(Fig. 1), the solution did not reach the pelvis of the kidney, but meeting obstruction returned into the bladder. The pyelogram shows the catheter deviating to the right across the spinal column to enter the tumor which is dimly but definitely outlined. Evidently, we had to deal with a kidney tumor although its nature was not suspected. The patient was sent to the City-County Hospital.

On March 18, 1929, nephrectomy was done. An incision was made reaching from the lower border of the twelfth rib to the crest of the ilium. The superior triangle was opened and enlarged allowing the presentation of a tense, glistening, globular mass. A trocar was inserted and a large quantity of chocolate colored fluid drawn off. As the mass was not reduced to the point where it could be easily delivered an incision was made and a large

amount of old blood, almost solid, was removed from the sac. There were dense adhesions everywhere that necessitated a lot of tedious work. The ureter was found and tied off. The pedicle was caught by three Kelly clamps. While passing a suture on a needle around the pedicle, an alarming hemorrhage occurred, which was controlled by packing with "lap" pads. The tumor was extracted. During the excitement, the needle was lost, but was recovered a couple of weeks later. Owing to the patient's condition, the wound was hurriedly brought together and the patient returned to bed. Saline and glucose solutions were given intravenously. After this, recovery was uninterrupted.

In some of these cases where the tumor is not too great, it is possible and recommended to separate the sac from the renal tissue. In this case, the enormous size of the tumor, coupled with the fact that the kidney was practically without function, indicated a nephrectomy. The kidney substance evidently had been destroyed by pressure.

Fig. 2. Photograph of kidney and cyst after removal

PATHOLOGICAL REPORT (Dr. George Turner): The tissue consists of the left kidney together with a large solitary cyst springing from its cortex (Fig. 2). The kidney tissue proper is uninvolved except it is greatly compressed and is flattened out in the cyst wall. The cyst is very large. It measures 30 cm. in diameter The wall is thick and fibrous. It measured 8 mm. in thickness. The wall carries moderately abundant well formed blood vessels. There is scattered small round cell and large mononuclear infiltration. The cyst cavity is lined with flat cuboidal cells. The cyst wall is just as thick and fibrous adjacent to the kidney substance as elsewhere and separates easily from the kidney tissue.

Diagnosis: Solitary Cyst of Kidney (Hematic).

The question arises as to whether the tumor is a serous cyst into which, by reason of injury, blood has extravasated, or is it a true hematic cyst. Or again, was the cyst either serous or hematic, in existence prior to the injury four years ago? Or was trauma the cause of it?

From the authorities quoted in this article, these cysts of either variety are congenital in origin. But could it not be possible that trauma caused a rupture of some of the blood vessels, probably fragile or aneurysmal, repeated hemorhages causing a steady growth? On the other hand, it is more likely that the mass is a hemorrhagic cyst per se, the trauma being incidental and causing the inflammatory condition evidenced by the dense adhesions.

The author is greatly indebted to Drs. George Turner and James J. Gorman for valuable assistance in working out the diagnosis in this case.

BIBLIOGRAPHY

1. Harpster, C. M.; J. Urol. 11: 157, Feb. 1924.
2. Kairis, Z.; Archiv. F clinische Chirurgie, 149: 700-717, Feb. 21, 1928.
3. Thompson, A. R.: Guy's Hospital Reports, Lond., 1929, 1xxis, 207.
4. O'Neil, R. F.' J. Urol., 14:269-273, Sep. 1925.
5. Colston, J. A. C.: J. Urol. 19, Mch. 1928.
6. Viethen, H.: Zentralblatt f. Chirurgie, 53:2655-2657, Oct. 16, 1926.
7. Ludowics, C. H.: Ztchr. f. urol. Chirurgie, 25-13-20, 1928.
8. Vonnachen, J. R. & Sprenger, Arthur: Ill. Med. Journal, 51: 413-415, May, 1927.
9. Manna, Arturo: Il Policlinico, (surg. sect.), 34: 410-421, Oct. 10, 1927.
10. Krogius, Ali: Acta Chir. Scand., Dec. 1928.
11. Young, Hugh H.: Pracitce of Urology, vol. I, (W. B. Saunders Co.) Page 502.

DISCUSSION

(Papers of Drs. Shultz and Jamieson).

DR. GEORGE SHIELDS, Phoenix, (opening):—The chief point gotten from these papers is that there should be thorough urological study. Have talked with doctors who have an idea that uteral stones never have to be operated on; these papers give different ideas. Would like to inquire what percentage of cases require operation. Anomalies are fairly common and can cause a great deal of trouble.

DR. M. MATANOVICH, Phoenix:—Expressed great interest in the case of Dr. Jamieson. He presented a patient for discussion and diagnostic suggestion. The pyelogram showed the ureter pushed to the middle, which suggests that the lesion is retroperitoneal. The question as to the condition of the other kidney has yet to be worked out, it having been delayed on account of the patient's condition.

DR. K. D. LYNCH, El Paso:—In discussing the case of the above patient, thinks the double pyelogram should be made, and if there is evidence of polycystic kidney, do not operate unless definite symptoms occur.

DR. E. PAYNE PALMER, Phoenix:—All of the papers in this symposium have been especially interesting and instructive, but Dr. Jamieson's paper on "Solitary Cyst of Kidney" is most interesting to me because of the fact that I have had two of these cases during the past two years.

The first was a female, age 45, married, seen Aug. 12, 1927. She was never sick until three years ago except when she had usual childhood diseases. Started to menstruate when 11 or 12 years old. Began to have pain in left side, which at times extended across abdomen to the right. This pain always came on at menstruation time and lasted for an indefiunite numbers of days after menstruation had ceased. At one time this severe pain lasted over a period of about six months. Patient always felt tired and run down.

A general physical examination gave normal findings except that there was a large tumor filling

the upper and outer portion of the abdomen extending to the right of the median line. Tumor was freely movable, could be displaced to the right side and into the pelvis and replaced back into position of the left kidney. Functional kidney test showed the right kidney to be functioning a little in excess of normal and the left kidney about fifty per cent, with no other abnormal findings. Pyelogram was not made. Diagnosis: Cyst of the left kidney.

Operation Aug. 23, under ether anesthesia. Exploration of the abdomen and right kidney showed the abdominal contents to be normal and the right kidney to be normal except a slight enlargement. After opening the abdomen, examination of the opposite kidney should always be made when a cyst of one kidney is suspected and extirpation anticipated. The posterior peritoneal layer over the tumor was incised and the two anterior and posterior peritoneal surfaces were sutured together in order to make the operation extra-peritoneal. After exploration of the cyst, it was found to be too large to remove unless a very extensive incision was made. The cyst occupied the lower half of the kidney. A trocar was inserted and four liters of fluid were drained off. A large portion of the kidney was destroyed, about fifty per cent remaining. Following the draining of the fluid, nephrectomy was an easy procedure, the sutures used in bringing together the anterior and posterior surfaces were cut loose and the posterior surface closed except for space for drainage from the kidney pouch through the abdomen and abdominal wound. The anterior wound was closed in layers. Patient made an uneventful recovery; left the hospital on the fourteenth day and has enjoyed splendid health ever since.

The second case was a male child, age 2 years, greatly emaciated, seen June 28, 1928.

About one year before, mother noticed slight swelling in baby's abdomen. Took the baby to a doctor who had been treating the child medically ever since. During this time the mass in abdomen had gradually become larger and child had been losing weight and appetite.

Examintion showed a large and irregular mass filling all of the right side of the abdomen and extending into the left. Tumor was soft and palpable and gave the feeling of fluid contents. Tumor extended to the right lumbar region and was apparently fixed at this point. Diagnosis: Cyst of the right kidney.

Urological and kidney functional tests were not made in this case. Estimated urinary output gave the impression that the function was normal.

Operation June 28, under ether anesthesia, through a six inch right paramedian incision, which, by the way, extended from the lower costal margin to the symphysis pubis. After opening the abdomen, exploration showed the tumor to be retroperitoneal and attached on the right side, pushing the cecum and the ascending colon across to the left of the median line. Otherwise abdominal contents were normal. Left kidney was examined and found to be somewhat larger than normal. The posterior peritoneal layer covering tumor was incised and posterior and anterior peritoneal layers sutured together closing peritoneal space. The tumor was found to be a single cyst, a small amount of kidney tissue remaining in the upper pole. The greater portion of the kidney had been destroyed. The tumor was dissected free with pedicle vessels and ureter. The vessels were triple clamped and the ureter double clamped. Pedicle was then incised and tumor removed. Carbolic acid and alcohol were applied to the ureter and vessels. The vessels and ureter were double ligated. Wound was carefully inspected and as there was no bleeding point and had been no spilling of contents, it was deemed advisable to close the wound without drainage. The anterior and posterior peritoneal layers which had been sutured together, were cut loose and the posterior peritoneal layer closed over the kidney pouch. Abdominal wound was then closed without drainage.

This child made a satisfactory recovery and left the hospital on the seventeenth day. Was recently seen. He has grown rapidly and is in splendid condition.

DR. W. G. SHULTZ, Tucson:—Answering Dr. Shields' question about the incidence of stones. Twenty per cent of ureteral stones require operation. (Shows some slides of ureteral stone.) Dr. Jamieson's paper carries a warning for the general practitioner, who sees these patients first. The patient cannot usually locate his trouble sufficiently to indicate that he should seek the advice of the urologist, and he usually calls his family physician. If the physician is careful, he will usually call in the urologist. Obstruction anywhere along the ureter will very soon produce permanent damage to the kidney. It is very rare to see a case of pyelitis without nephritis; during back pressure the function of the kidney is damaged. It is surprising how large a stone will pass when helped by dilation of the ureter; on the other hand some small stones will not pass and must be operated upon. It is well worth reporting on any case of serous cyst in children, because there are only six of these to be found in the literature.

NEPHRITIS

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(Presented to the Phoenix Clinical Club and to a joint meeting of the Maricopa County Medical Society and the Staff of the Good Samaritan Hospital, at Phoenix, March 24, 1930).

The kidneys serve as the chief excretory organs of the body, this function being shown in the elimination of the end products of protein metabolism, in the maintenance of the normal volume and composition of the blood, and in assisting in the neutrality regulation of the body fluids.

The end products of protein metabolism are mainly urea, uric acid and creatinin which, being in solution in the blood plasma and being of no further use, should be excreted. The kidneys respond to any change in the volume of the blood, excreting fluids freely when the volume is increased and retaining fluids when the volume is reduced. By the ability of the kidneys to excrete the inorganic salts, retaining certain basic radicles and eliminating certain acid radicles, the proper degree of neutrality of the organism is maintained. Some of the substances excreted in the urine are excreted in direct proportion to their concentration in the blood; while other substances do not appear in the urine, except in traces, until they have reached a degree of concentration which, as it were, overflows, or exceeds their threshold

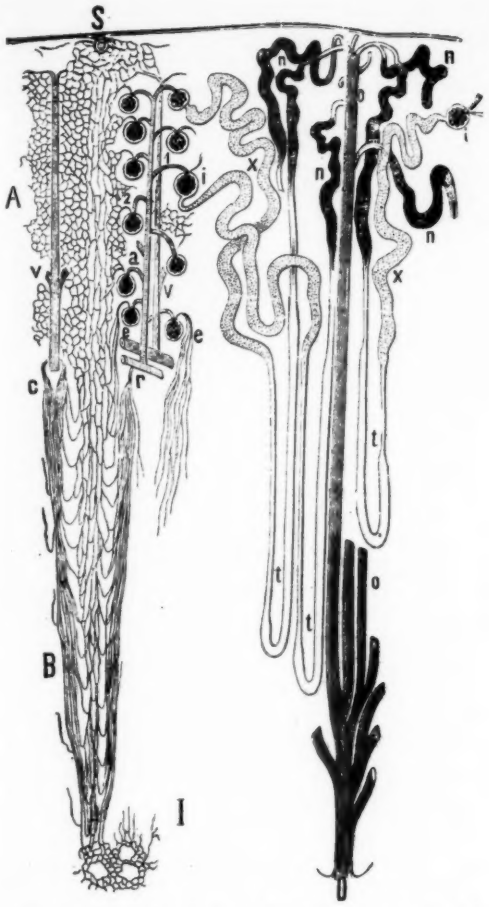

Fig. 1. The Nephron or functional unit of the kidney. At (a) and (1) are efferent vessels entering glomeruli; afferent vessel at (2) with capillary system which surround the convoluted tubules diagramatically shown under (s); proximal convoluted tubules are shown light in color (X), Henle's loop at (t), and distal convoluted tubules in black (n); collecting tubule at (o). (Illustration from Landois' Physiology.)

values in the blood stream, substances which Cushny has designated as threshold bodies, especially referring to glucose and a few less important substances.

The nephron (Fig. 1), or functional unit of the kidney, is composed of a Malpighian body, consisting of a glomerulus, surrounded by Bowman's capsule, and a uriniferous tubule from its beginning to the point where it unites with a collecting tubule and including the proximal and distal convoluted portions, connected by Henle's loop. The glomerulus (Fig. 2) consists of a loop of capillaries forming the terminal network of a branch of an afferent artery; these capillaries reunite to form the efferent vessel. The wall of

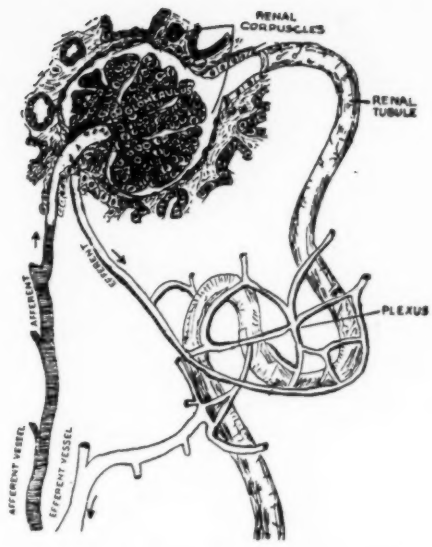

Fig. 2. (From Kimber & Gray's Anatomy for Nurses.) Magnified view of glomerulus, showing afferent and efferent vessels, proximal convoluted tubule and plexus of capillaries.

these capillary loops is a single layer of endothelium, without definite cell outline and with numerous minute openings. After leaving the glomerulus the efferent vessel breaks up into a plexus of capillaries upon the adjacent tubules. The glomerular capsule consists of a double layer of epithelium, the inner layer dipping into the folds of the capillary loops, the outer layer forming the lining of the wall of the capsule, which is the dilated blind extremity of a tubule.

The proximal convoluted tubule is about fourteen millimetres in length and lined with low columnar epithelium. This portion passes into Henle's loop which ends in the distal convoluted portion, also lined with columnar epithelium and ends with its junction with a collecting tubule.

The blood supply of the kidney is derived from the renal artery entering at the hilum, dividing and subdividing until, at the margin of the cortex, the arcuate vessels give off the interlobular arteries whose subdivisions terminate in the glomeruli, from whence the blood is carried by the efferent vessels to a second set of capillaries surrounding the tubules, and is then collected by the interlobular vein and returned to the renal vein. Thus, all the arterial blood to the nephron passes through the capillary loops of the glomerulus, a very important consideration, as will be seen later.

The scope of this paper will not permit a review of the various theories of the man-

ner in which the function of excretion is accomplished. However, a very brief summary may be given. The glomerulus acts as a filter, the process being purely a physical one. The filtrate as it is contained on Bowman's capsule is a deproteinized serum, which, on passing through the tubules, is changed by absorption of water and some of the solids, thus concentrating the filtrate. This absorptive process is supposed to be an active absorption due to the vital activity of the tubular epithelium. The activity of the filtration process depends chiefly on the pressure in the blood stream and rate of flow through the capillaries of the glomerulus, while the activity of absorption depends on the rate of flow through the tubules, the amount of absorbable substances present and the vital activity of the epithelial cells of the tubules.

Our conception of what is implied by the term nephritis has undergone many changes and is still subject to revision. While the outline we will give is quite generally accepted, we are aware that there are investigators whose observations and experiments suggest that the conclusions are at fault, because largely based upon histological findings which, to a large extent, represent terminal lesions, these being more pronounced in the kidney due to a greater concentration of toxic bodies at the point of excretion. They contend that changes in the liver and other organs are just as essentially a part of the process as are renal lesions and the conclusion reached is that nephritis is a general or constitutional disease and should no more be called a disease of the kidney than that scarlet fever be called a disease of the skin.

The term "Bright's disease" originally referred to disease of the kidneys associated with dropsy and albuminuria, a purely clinical conception. Later, the term nephritis came into use, representing pathological and clinical concepts and having a much wider significance, including inflammatory, degenerative and vascular changes in the kidneys, which were classified into acute and chronic parenchymatous and chronic interstitial nephritis, this classification being an attempt to correlate the clinical picture with the pathologist's findings. This classification has proven unsatisfactory, certain pathologists (Lubarsch, Ribbert) questioning whether there is such a thing as a parenchymatous inflammation. Later, Fahr and others discarded the term chronic interstitial nephritis, claiming that it does not represent a definite entity; as one has said, it is "neither nephritis nor interstitial." More recent studies in the pathtology of nephritis tend to emphasize the importance of the glomeruli in the fundamental changes and relegating to a place of minor importance the interstitial changes as being almost entirely secondary in sequence, and whose increase is to replace the destruction of other elements.

The three histological elements which make up the nephron, the physiological unit of the kidney, and which are considered of first importance in the pathology of nephritis, are, (1) the terminal arterioles of the afferent vessels; (2) the glomerulus, (3) the system of tubules which comprise the balance of the nephron. the glomeruli being preeminent as the starting point of all forms of true nephritis. The involvement of the tubules may arise secondary to, or in conjunction with, the glomerular changes, thus having a part in a true nephritis. Tubular involvement may also occur as a separate entity, as in a degenerative process resulting from toxemias of various origins, to which Muller gave the name "nephrosis," a term which has had acceptance for many years. Elwyn criticizes its use except in reference to lipoid nephrosis, preferring to designate other toxic forms by name, as the bichloride kidney, the kidney of pregnancy, etc. The changes in the vascular system are chiefly those of arteriosclerosis, which result in a diminution of blood supplied to the glomeruli, with resultant diminution in function, resulting finally in a contracted kidney with excess of interstitial tissue, now classed as the arteriosclerotic diseases of the kidneys. The following classification by Elwyn is quite brief and appears to be as satisfactury as any proposed up to this time:

I. **Glomerulo-Nephritis.** Inflammation of the glomeruli the principal pathology with secondary changes in the tubules.

A. Focal Glomerulo-Nephritis, in which only a fraction of the glomeruli are involved; (a) embolic focal glomerulo-nephritis; (b) non-embolic focal glomerulo-nephritis.

B. Diffuse Glomerulo - Nephritis: (a) acute diffuse glomerulo-nephritis, all the glomeruli uniformly involved; entirely subsides or passes into one of the following; (b) subacute diffuse glomerulo-nephritis; (c) subchronic diffuse glomerulo-nephritis; (d) chronic diffuse glomerulo-nephritis.

II. **Nephrosis:** Tubular degeneration.

A. Nephrosis of pregnancy.

B. Lipoid nephrosis.

C. Nephrosis of amyloid disease.

D. Nephrosis of bichloride of mercury poisoning, or tubular nephrosis.

III. **Arteriosclerotic Diseases of the Kidney.**

A. Arteriosclerosis of the renal artery, with no definite symptoms.

B. Renal Arteriolosclerosis, without insufficiency and with benign hypertension.

C. Renal arteriolosclerosis, with insufficiency and malignant form of hypertension.

Glomerulo-Nephritis: When we consider that practically the whole blood supply of the nephron must traverse the glomerulus, the importance of this part in the physiology and pathology of the kidney is evident. It is now considered that acute glomerular involvement is the starting point of all forms of true nephritis, excluding from this terminology the nephroses and the arteriosclerotic diseases. Glomerulo-nephritis may occur as a focal involvement, the extent of the pathology varying widely. In the embolic type, the etiology is practically always a subacute endocarditis, the bacteremia resulting in embolism of certain of the capillary tufts of the glomerulus, usually only isolated tufts of a glomerulus being affected

Fig. 3. Hyalin thrombus of isolated tuft of glomerulus (indicated by arrow.) (Figures 3 to 15 are taken from MacCallum's Textbook of Pathology, Saunders, 1920.)

(Figs. 3 and 4) and only isolated glomeruli being involved, the remaining tufts or glomeruli showing no changes. The glomerular endothelium of the involved capillary loops show first a swelling and loss of cell outline and granular appearance. Then the lining cells of Bowman's capsule over the affected tufts show involvement with desquamation into the capsular space, with fusion of the capsule and loops of the glomerulus. This area often takes on a crescentic form (Fig. 5), and when the acute process heals there is left a crescentic or pyramidal hyalin mass.

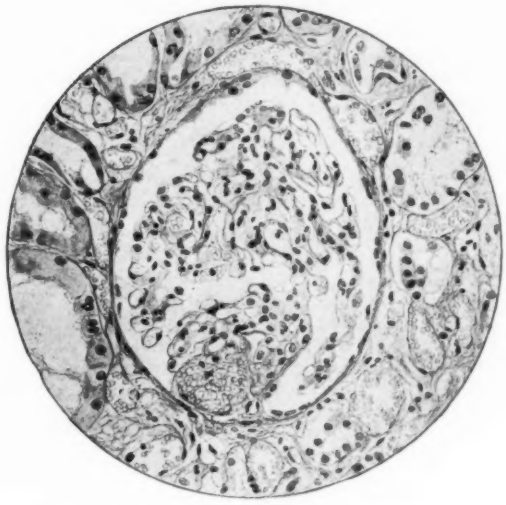

Fig. 4. Capillary thrombus of isolated tuft of glomerulus.

Fig. 5. Crescentic mass of desquamated cells in capsular space.

If the entire glomerulus is involved, there is complete replacement by hyalin fibrous tissue in contour identical with the dead glomerulus. The tubules in intimate relation with the affected glomeruli show cellular changes, the epithelium becoming atrophied, the cords of cells surrounded by round cell infiltration and later fibrous replacement tissue is deposited.

A milder type of focal glomerulo-nephritis is also described as being due to a bacteremia such as sometimes occurs with scarlet fever and streptococcic tonsillitis, without definite embolic obstruction of the glomerular capillaries, but in which there is injury to the capillary wall, followed by proliferatoin and deposit of exudate. This condition usually heals with little or no permanent loss of function.

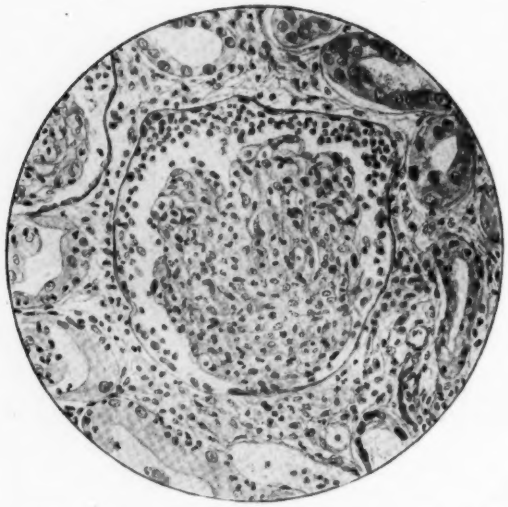

Fig. 6. Glomerulus in acute glomerulo-nephritis.

In acute diffuse glomerulo-nephritis, we have a condition very different from acute focal nephritis, both in extent of pathology and in degree of impairment of renal function. Here we have not only involvement of practically all the glomeruli but also of all the glomerulus, with consequent marked renal insufficiency. The first change is swelling of the capillary endothelium, the lumen becoming so narrowed that the red cells almost disappear. An exudate forms about the capillary loops and filling the capsular space, composed of leucocytes, nuclei of degenerated endothelium and granular material (Fig. 6). As the glomerulus loses its blood carrying power, the tubules become involved and we find swelling, fatty and hyalin degeneration and desquamation of the epithelium, as secondary to the glomerular changes and resulting from lack of blood supply. The interstitial tissue also shows round cell infiltration and edema, the infiltration being especially marked surrounding the glomeruli. Whether the essential cause of diffuse glomerulo-nephritis is bacterial or toxic, or these in combination, is not definitely established. Though the condition occurs frequently as a complication of streptococcus infections, as endocarditis, streptococcic sore throat, and especially scarlet fever, yet this organism is seldom found in the urine, in contrast to the frequent finding of it in focal glomerulo-nephritis. Even in the entire absence of a known infection, very sudden development sometimes follows exposure to cold, or sudden chilling of the skin, often within twenty-four hours. Cases due to exposure are of shorter duration and recovery more complete than those complicating an infection, indicating less organic change in the kidney structures.

Acute diffuse glomerulo-nephritis, if it does not recover or terminate fatally in a short period of time, progresses into a condition which may be classed as a subacute or chronic glomerulo-nephritis, depending on the time element and activity of the process. As in the acute form, so in the subacute and chronic types, the glomerulus is primarily involved and the tubular and interstitial changes are secondary. The capsular

Fig. 7. Proliferation of capsular endothelium in subacute glomerulo-nephritis.

endothelium is proliferated (Fig. 7), crescentic masses form in the capsular space (Fig. 8), there is cellular deposit in the capillary tufts, which later undergoes hyalinization (Fig. 8), transforms the glomerulus into a round hyalin body, the cell structure being entirely lost (Fig. 9). The tubules show degenerative changes, dependent on the degree of glomerular involvement, these changes resulting in atrophy of the tubules in relation to the hyalinized glomeruli. The interstitial tissue is increased surrounding both the tubules and glomeruli.

This is a progressive condition, lasting from two to twenty-five years, and terminat-

ing ultimately in renal insufficiency and uremia. The chronic form has frequently been classed as secondary contracted kidney, but it is important to keep in mind that the changes have their origin in an acute diffuse

Fig. 8. Hyalinized desquamated endothelium in subacute glomerulo-nephritis.

glomerulo-nephritis. The more chronic type represents a gradual hyalinization and obliteration of a majority of the glomeruli, the atrophy of the corresponding tubules and their replacement by connective tissue, with sclerosis of the afferent arteries. Clinically,

Fig. 9. Large crescent formation and collaspe of glomerulus.

there is persistent increase in blood pressure, an increasing loss in variability of renal function, shown by prolongation of elimination time, polyuria and nocturia and a lessened ability to concentrate the urine, terminating in absolute renal insufficiency and uremia. The increase in blood pressure is supposed to be a compensatory mechanism to maintain filtration pressure in the glomeruli.

Nephrosis. Tubular degenerative nephritis. Acute parenchymatous nephritis.

A. The kidney of pregnancy. The view has gained ground that eclampsia cannot be identified with uremia and that the renal symptoms are only a part of the toxemia of pregnancy. The glomeruli show changes of variable degree and extent, and though there is swelling of the capillary walls and slight cell proliferation, the changes are insignificant as compared with those in acute diffuse glomerulo-nephritis. However, in the proximal convoluted tubules there are marked changes in the form of albuminoid degeneration, with more or less widespread fatty deposit in the cells and the formation of casts, often obtaining hemoglobin in large amounts (Fig. 10).

B. Lipoid Nephrosis. The clinical picture is characterized by a chronic course, edema, reduced amount of urine, albuminuria, absence of hypertension and absence of renal insufficiency, as shown by normal NPN and urea, and a lowered albumin content of the blood. True lipoid nephrosis is rare, as compared to other forms of kidney involvement. The pathological picture includes tubular degeneration, with cloudy swelling, fatty and hyalin changes, with necrosis and degeneration of tubular epithelium. These changes are not limited to the proximal tubule, but extend to the distal convoluted tubule and to Henle's ascending loop. There is associaetd edema and lymphocytic infiltration of the interstitial tissues.

C. The nephrosis of amyloid disease. This occurs in chronic suppurations, chronic tuberculosis, etc. The kidney is of firm consistency, grey yellow color and waxy appearance. The glomeruli are always involved and the tubules show varying amounts of amyloid deposit in the epithelium and the lumen contains various types of casts.

D. The nephrosis of mercury poisoning. Ingestion of bichloride of mercury results in renal injury and since this injury is shown chiefly in the tubules, the lesion has been classed as a nephrosis. It differs from the lipoid nephrosis in that necrosis of the tubular epithelium is the prominent change. (Figs. 11 and 12.)

III. Arteriosclerosis of the kidney. Sir James Mackenzie has shown that "one of the most striking changes that takes place in the progress of arterial degeneration is the

limitation of the capillary fluid." Since the function of the kidney depends upon the intact state of its capillary vessels and the proper degree of pressure in the arterial system, the limitation of this capillary field brings disastrous results. There is no compensatory mechanism available as a factor of safety. Arteriosclerosis of the renal artery and larger branches results in reduction in size of the kidney, with irregularities on the surface and with adherent capsule. In the portion of the cervix supplied by these narrowed or obliterated vessels, there is collapse of the glomeruli, with more or less extensive hyalinization and atrophic changes. Since this is not a diffusive process, there is sufficient kidney cortex remaining intact to carry on renal function, so no renal insufficiency is shown.

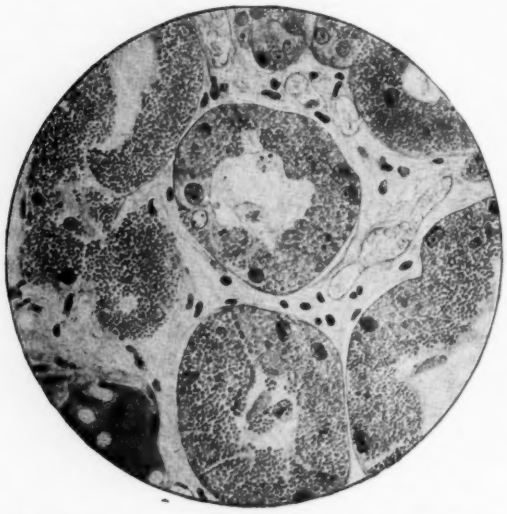

Fig. 10. Tubules showing lipoid and hyalin changes.

A secondary indurative process has been mentioned, which represents the end result of acute, subacute, or chronic nephritis. There is also a primary form which is sclerotic in its tendency from the beginning. These were both included under the term chronic interstitial nephritis, a term which Elwyn discards. This revision of classification of these indurative lesions of the kidney has taken place since apparatus for measuring blood pressure has come into common use, and there was found the combination of arteriosclerosis, hypertension, and evidence of kidney disease. Thus was conceived the clinical entity of cardiorenal disease. Then as the knowledge of blood chemistry developed, it was found that not all of this class really had a renal insufficiency. The work of the pathologist also brought out the fact that sclerosis of the smallest arteries and arterioles is the important change, and the terms renal arteriolo-sclerosis without renal insufficiency and renal arteriolo sclerosis with renal insufficiency are used to include the conditions formerly classed as arteriosclerotic contracted kidney and, by others, as chronic interstitial nephritis. The smallest arteries and arterioles show thickened intime wtih hyalin and fatty degeneration progressing to complete obliteration

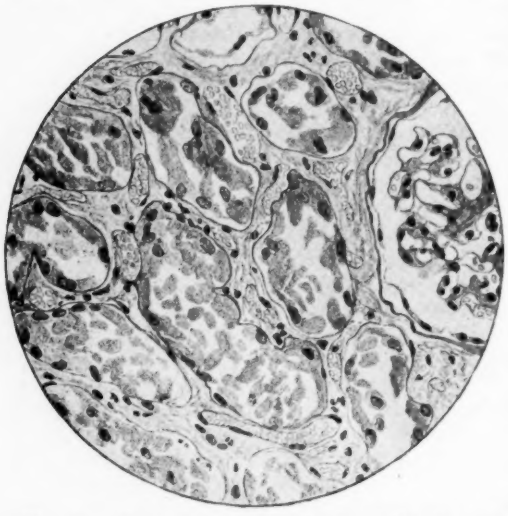

Fig. 11. Desquamation of tubular epithelium in mercury poisoning.

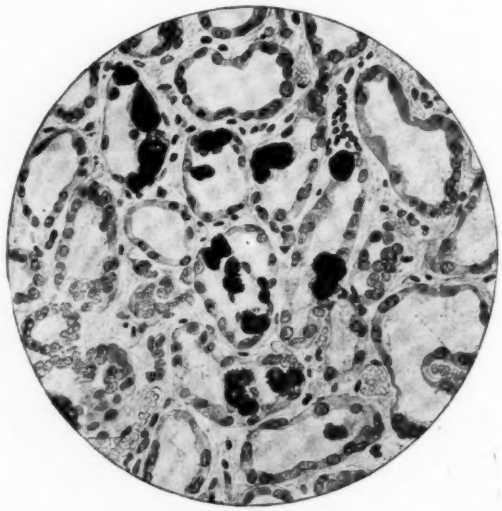

Fig. 12. Later stage of changes in mercury poisoning.

(Fig. 13). The glomerular tufts show similar changes and an obliteration of the afferent vessel, this capillary network collapses and later is seen as a hyalin, fibrous, round-

Fig. 13. Narrowing of renal vessels in arteriosclerotic diseases of kidney.

ed mass. (Fig. 14 and 15.) The tubules atrophy and connective tissue overgrowth occurs, which later shrinks, producing irregular surface and adhesion of the kidney capsule. When the amount of kidney structure involv-

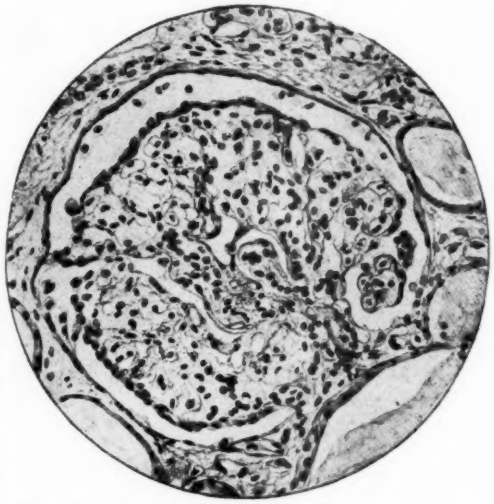

Fig. 14. Early arteriosclerotic change in glomerulus.

ed is moderate and hypertension not excessive, there is no renal insufficiency and what is called a benign hypertension exists. As the involvement progresses, more and more of the kidney parenchyma is thrown out of function, and the effrot to kepe up the filtration process calls for increased pressure in the blood stream, and there develops a malignant hypertension with definite renal insufficiency. The histological changes are the same in the latter condition as in the former, except more extensive.

Fahr has described cases in which, in addition to the sclerosis, there are inflammatory changes and Aschoff and others agree that this group may not represent a very definite pathological entity, though all cases have a progressive course with marked hypertension and renal insufficiency. Elwyn, however, describes this group as a disease which is characterized clinically by hypertension of many years to which renal insuffi-

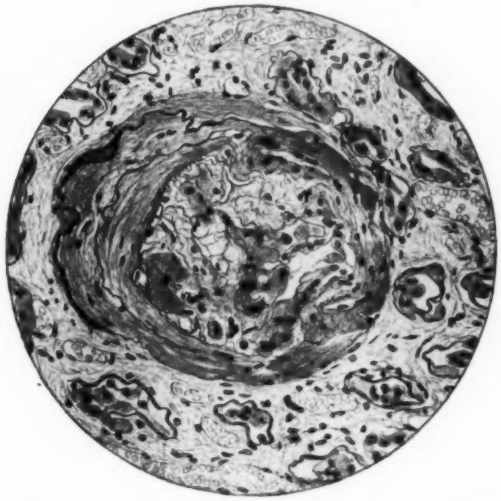

Fig. 15. Later changes in glomerulus in arteriosclerotic diseases of the kidney.

ciency is gradually added, and with a pathological picture of an extreme degree of arteriolo-sclerosis, and, in many instances, with chronic inflammatory changes.

(Note: There will be found, in the following pages, discussions of several cases of nephritis of various types, which will serve to illustrate the clinical phases of the disease.)

FIVE MONTHS' EDEMA OF THE ANKLES

(Case 16021· Case Records of the Massachusetts General Hospital, New England Journal of Medicine, January 9, 1930, p. 79).

First admission. An unmarried woman thirty-three years old of Canadian parentage entered June 29 complaining of swelling of the ankles, especially in the evening, of five months' duration.

Eight months before admission she had "influenza"—headache and aching of the joints, bones and back, with sore throat and a feverish feeling. She felt quite ill for a week, but continued to work

hard and went out a good deal at night. She felt very tired afterward. In December she felt well. In January she had severe pain over the left antrum with slight swelling. In February she found her ankles were swollen. After six days in a hospital her condition improved. For the next two months she was on a diet. Several weeks before admission she had a second attack similar to the first. She stayed in bed, and for a few weeks felt well. June 16 and 17 she had nausea, vomiting, diarrhea and abdominal cramps. For the past two nights she had passed a small amount of urine twice each night. Her usual urinary output was three pints in twenty-four hours. For the past two months she had not slept well. She had taken aspirin frequently for pain over the antrum. She had lost no weight. Her upper eyelids were puffy in the mornings. She had hemorrhoids. A week before admission a physician of this hospital found the non-protein nitrogen 24, the blood chlorides 632.

Her mother died of cardiorenal disease, one sister of brain tumor, another of tuberculosis. A living sister also had tuberculosis. The patient had measles at three. She had had possible typhoid fever and rheumatism. Every winter she had several attacks of tonsillitis. Eight years before admission she had influenza. Two years before admission she had an operation for double antrum done at the Eye and Ear Infirmary. She had a headache every week, leaving her head sore. She was rather nervous and thought she did not remember so well as she used to.

Clinical examination showed a well nourished woman. Upper teeth false, many carious lower teeth. Some pyorrhea. Tenderness over both antra, especially the left. Lungs normal. Apex impulse of the heart not seen or felt. Left border of dullness 8 centimeters from medsternum, 1 centimeter outside the midclavicular line. Right border of dullness 3.5 centimeters, supracardiac dullness 6. Sounds and action normal. No murmurs. Aortic second sound greater than pulmonic second. Blood pressure 148/110 to 135/95. Pulses and arteries normal. Abdomen pendulous, soft. Marital introitus. Fundus in third degree retroversion. Small external hemorrhoidal tab. The examination was otherwise negative.

Urine: 33 to 72 ounces, specific gravity 1.002 to 1.124, at a two-hour test 1.002 to 1.010, a very large trace to the slightest possible trace of albumin at all of seventeen examinations. The sediment was full of granular casts and bacteria at one examination, occasional hyalin casts at the other, 4 to 8 leukocytes at both, 1 to 2 red cells. Blood: 10,500 to 8,000 leukocytes, 80 per cent polynuclears, 4,500,000 to 4,900,000 reds, hemoglobin 75 to 85 per cent, platelets diminished, smear otherwise normal.

Chart normal.

X-ray examination showed the heart measurements apparently within normal limits. The frontal sinuses were rather rudimentary. There was thickened membrane of each antrum, especially of the right. One tooth showed periapical absorption. There was a remaining root fragment of a molar. The kidney shadows were not remarkable in size or position. Just below the right lateral border of the sacrum were two shadows of increased density, probably bowel shadows. Just lateral to the transverse processes of the 4th and 5th lumbar vertebrae was an indefinite shadow of increased density which it was thought might represent a calculus, although its appearance suggested an artefact. A second examination two weeks later showed this same shadow. It was not in the usual position, but was somewhat lateral to the usual position of the ureter.

In the ward the patient was comfortable and had no edma. July 9 she was up and about. Two days later there was very slight pitting edema over the ankles which subsided after thyroid extract therapy and return to bed. July 18 five teeth were extracted. A week later she still had slight pitting edema over the lower legs after being up for a few hours. She had also some pain in the left antrum in bad weather. A throat consultant advised no treatment. July 24 she was discharged slightly relieved.

History of interval. After leaving the hospital she was constantly under medical care. She rested in the country for several months and felt very well, although some edema of the ankles persisted. She then worked very hard, keeping fairly well to her diet, and felt very well until November, a year and four months after discharge. Then her ankles and face became much swollen and she had a dragging sensation all over. She spent a week in a hospital with some improvement. After two weeks of rest at home she began to work again, though she did not feel strong. In December she noticed that her abdomen was swelling. After two weeks she spent three weeks in the hospital, again with improvement. While there she developed a skin lesion at one time thought to be erysipelas,—red, swollen, painful lesions, not symmetrical, recurring in different regions. After a week at home the swelling of her abdomen increased, causing dyspnea, nausea and occasional vomiting. She again returned to the hospital. During her stay this time she was fairly ill, with shaking, sweating, unproductive cough, at times violent, and fever lasting two weeks. She thought a diagnosis of pneumonia was made. Five days before her second admission she was sent in from her hospital to the Eye and Ear Infirmary on account of recurring left supraorbital pain. It was thought at the infirmary that she probably had "a little something" in her sinuses. She was transferred to the Massachusetts General Hospital for treatment of the general condition.

She had had hemorrhoids for years, and had at times noticed a little blood.

Second admission, March 30, twenty months after her first admission.

Clinical examination showed a pale, very edematous looking woman. Tonsils missing. Left antral region tender. Moist rales throughout both lungs. Apex impulse of the heart not seen or felt. Left border of dullness 12 centimeters from midsternum, 4.5 centimenters outside the midclavicular line. Right border one centimeter to the right. Supracardiac dullness 4 centimeters. (*) Pulses and arteries normal. Blood pressure 190/120 to 90/70. Abdomen showed uniform soft distention. Generalized edema. Immense edema of vulva. Marked edema of the sacrum and legs. Obliteration of optic cup. (*) Sounds normal. Rhythm rapid. No murmurs).

Urine: 68 to 47 ounces, specific gravity 1.020 to 1.025, a large trace of albumin at all of four examinations, sugar at all of three, acetone and diacetic acid once, 6 to many leukocytes at all of four sediment examinations, hyalin casts at three, the last specimen loaded with hyalin and granular casts. Blood: hemoglobin 70 per cent, reds 2,800,000 to 3,960,000, slight anisocytosis once, two smears otherwise normal, leukocytes 8,700 to 10,000, polynuclears 62 to 70 per cent. Hinton negative. Non-protein nitrogen 23 to 44 milligrams. Total protein 3.162 per cent to 4.3 per cent. Blood cholesterol 667 milligrams. Basal metabolic rate 3, pulse 99. weight 73.5 kilograms. Blood sugar 34 milligrams.

Temperature 97.1° to 99.3°, pulse 83 to 103, respirations 20, with a terminal rise to 105.3°, 170 and 31.

April 2 the heart could not be percussed. The sounds were of good quality. There was a systolic murmur at the base. A few crepitant rales were heard at the lung bases. There was massive edema of the abdominal wall and possible ascites. April 4 the total protein of the blood was half the normal. Early that morning the patient had a chill with a temperature of 104.2°. There was slight tenderness in both lower quadrants; no spasm. The right lung base showed rather coarse crepitant rales. She sank rapidly into coma. The blood pressure dropped. April 5 the albumin-globulin ratio in the blood was reversed—albumin 2.1 per cent, globulin 2.2 per cent. That morning she died.

Discussion by Dr. S. I. Bloomhardt

History, eight months before admission of influenza, sore throat and temperature; later, pain over left antrum. One month later, ankles became swollen; in hospital six days and her condition improved; went on a diet, but six months later, she had nausea, vomiting, diarrhea and abdominal cramps, severe frontal headaches, passed small amount of urine twice each night, eyelids became puffy, non-protein nitrogen 24, blood chlorides 632. Very poor family history. Many attacks of tonsillitis, influenza once before, eight years ago. Blood pressure 148/110 to 135/95. Urine 33 to 72 oz.; sepecific gravity 1002 to 1024; very large trace to slight trace of albumin at 17 examinations; sediment full of granular casts; occasional hyaline cast at another; 4 to 8 W.B.C. at both, 1 to 2 R.B.C. X-ray revealed antrum disease, periapical absorption of one tooth; three weeks later in hospital, no edema of the ankles which subsided after thyroid to get up and about and there was a slight pitting edema of the ankles which subsided after htyroid extract therapy and return to bed. One week later five teeth were extracted and one week later discharged. After two months rest, worked hard one year and four months, keeping to diet, when her ankles and face became very swollen; treatment and patched up, and again in one month swelling of abdomen and edema; entered hospital, developed a skin lesion, at one time thought to be erysipelas. Re-entered hospital with acute chest which she thought was diagnosed pneumonia. Twenty months after her first admission, again entered hospital, very edematous, tonsils missing, left antral region tender, moist rales throughout both lungs; rapid, somewhat dilated, heart; B. P. 190/120 to 90/70. Urine 68 to 47 oz.; sp. gr. 1020 to 1025, large trace of albumin at each of four examinations, sugar at each of three, hyaline casts at three, acetone and diacetic acid at each of three, last specimen loaded with hyaline and granular casts; non-protein nitrogen 23; blood cholesterol 667; blood sugar 34 mgm. Day before death, total protein 3.162 to 4.3. Basal metabolic rate minus 3; albumin-globulin ratio in the blood reversed; albumin 2.1, globulin 2.2. Massive edema of abdominal wall and possible ascites, abdomen showing uniform soft distention.

Evidently, a diffuse form of acute and then chronic diffuse glomerular nephritis, secondary to or should I say preceded and accompanied by, acute infections of the tonsils, sinuses, possible pneumonia and a streptococcic skin infection said to resemble erysipelas. Case shows edema, a heavy albuminuria at times, a slight retention of nitrogenous products in the blood, an elevation of blood cholesterol. In an interesting study of 31 cases by Murphy, in 1927, fourteen had chronic glomerular nephritis with edema; eleven had chronic glomerular nephritis without edema, while six were cases of hypertensive cardiovascular disease with edema from cardiac failure. A few points of interest; the presence of doubly refracting lipoids found in renal epithelium and in the urinary sediment is associated with chronic nephritis and edema; they were rarely found in the urinary sediment of hypertensive cardiovascular disease with edema from cardiac failure. None of the patients having nephritis without edema had doubly refracting bodies in the urine and in none were they found in the tubular epithelium at autopsy. A hypercholesterolemia was usually found in the cases of chronic nehpritis with edema, while those of chronic nephritis without edema and of hypertension cardiovascular disease usually had a normal cholesterolemia. In short, there exists an association between chronic glomerular nephritis with edema on the one hand, and on the other hand, an elevation of blood cholesterol, deposits of lipoid material in the tubular epithelium and the presence of doubly refracting lipoid bodies in the urine.

A group of John S. Hopkins men have studied the relationship of acute infections of glomerular nehpritis, a study of 40 cases. The onset of acute and subacute glomerular nephritis was preceded or accompanied in 85 per cent by an acute infection, such as tonsillitis, sinusitis, broncho-pneumonia or scarlatina. (This unfortunate patient being studied seemed to have all these plus periapical abscesses.) Cultures made from the infections in 32 cases showed hemolytic streptococci. Ten of the cases among those that could be constantly observed apparently recovered from the attack of acute nephritis. In nine of these, or 90 per cent, the infection and the infecting organism have disappeared. Twelve cases of those who could be constantly observed progressed to a chronic stage and terminated fatally; in ten of these, the infecting organism or infection has persisted. No evidence could be obtained to show that the streptococcus caused the glomerular nephritis by actual invasion of the kidney for blood cultures and urine cultures were negative. All the strains of the streptococci tested produced so-called toxic filtrates and it seems possible that such toxins liberated and eliminated through the kidneys might cause glomerular nephritis in patients rendered highly susceptible in some way to these toxins.

After six months, we notice thyroid therapy was resorted to for edema; this edema subsided under thyroid treatment and return to bed. This makes one suspect they are considering the case as a nephrosis. She remains under medical treatment and was comparatively well for one year and four months, when she intermittently broke down, was edematous and had secondary infections, until 20 months after her first admission, she re-entered the hospital with abdomen showing uniform soft distention, edema general, rapid heart, B.P. 190/120 to 90/70. Urine showed pronounced aluminuria and moderate cylindruria; blood no particular retention of non-protein nitrogen, an extremely high blood cholesterol, low plasma protein with inversion of albumin-globulin ratio, depressed basal metabolism, and a secondary anemia. This to me is rather typical of the clinical and laboratory pictures of a tubular degenerated kidney or a nephrosis.

In these cases of chronic nephroiss, there is almost always present and nicreased blood cholesterol content and reduced basal metabolism. It is felt by many that the function of the thyroid

gland is in some way concerned in the abnormal metabolic phenomena present. Epstein has pointed out some of our knowledge of chronic nephrosis is obviously derived from comparisons with myxedema. There is no evidence to show that the thyroid gland is diseased in chronic nephrosis, or that its function is subnormal, yet the amount of thyroid required to restore the metabolism of chronic nephrosis to normal is greater than in myxedema. Possible myxedema might be classed as an actual hypothyroidism and chronic nephrosis as a relative hypothyroidism. In chronic nephrosis, daily doses of one to four grams of thyroid are often required to elicit a metabolic response. If the oral administration of thyroid causes gastric distress, thyroxin is given intravenously. The fate of thyroid and thyroxin in nephrosis has not been determined.

The blood calcium is not given and it would be of interest if it were, because in such a case of edema and ascites and a reverse of the albumin-globulin ratio, an increase in blood chlolesterin, the blood calcium is usually low. Also, there is no mention of parathyroid being given and since there seems to be an endocrine imbalance in these cases which varies in different patients, sometimes thyroid is effective, sometimes parathyroid. Also, it would have been interesting if some of the laboratory findings had been given following the administration of thyroid and if mention of the nature of the medical treatment during the fourteen months between hospital admissions had been made.

Christian, Peters and others doubt that such a disease as chronic nephrosis exists. They feel that it is only a severe form of the chronic nephritis with salt and water retention. . Epstein, Elwyn, Moschowitz and others feel that it is a disease entity and in the outline and scholarly paper by Dr. Mills, he includes nephroses and its types; so, with this in view, and from the clinical and pathological findings just reviewed, will venture a diagnosis of mixed glomerular nephritis with nephrosis.

Diagnostic conclusions on this case, when presented before the Phoenix Clinical Club, were as follows:

Dr. J. M. Greer:—Endocarditis; chronic sinusitis; chronic interstitial nephritis; hypothyroidism; pulmonary edema; second admission, myocarditis with cardiac dilatation and insufficiency; no doubt a cardiac death.

Dr. H. P. Mills:—Lipoid nephrosis; diabetes mellitus; anasarca with terminal passive hyperemia of both lower lobes.

Dr. F. C. Jordan:—Chronic diffuse glomerular nephritis; nephrosis; sinusitis; terminal pneumonia.

Dr. F. J. Milloy:—Nephritis (tuberculous nephritis not excluded), but this is no doubt diffuse glomerulo-nephritis; superimposed on this is a nephrosis; hypertrophy and dilatation of heart; heart death.

Dr. Victor Randolph:—Nephrosis; chronic tonsillitis and chronic sinusitis.

Dr. T. T. Clohessy:—Chronic parenchymatous nephritis with the usual cardiorenal syndrome; evidently of bacterial origin; all the sequelae of nephritis.

Dr. Fred Holmes:—Chronic glomerulo-nephritis, with nephrosis.

Dr. O. H. Brown:—Glomerulonephritis; cardiac dilatation; hypertension; chronic tonsillitis; infected antra; abscessed teeth and pyorrhea.

PATHOLOGIC DISCUSSION

Tracy B. Mallory, M. D.

Anatomic Diagnoses: (1) Primary disease, chronic glomerular nephritis with superimposed nephrosis.

(2) Secondary or terminal lesions: Bronchopneumonia; acute pleuritis; ascites.

We were limited at autopsy to a small abdominal incision, to palpation of the organs and to removal of small pieces for microscopic examination from those we found diseased.

The kidneys were the most interesting thing. They were definitely enlarged, weighing 365 grams. When the capsule was stripped back it left a practically smooth surface. On cutting into the organ it showed a markedly pale surface of very bright lemon-yellow tinge, which made it obvious even in gross that there were large amounts of lipoid in the parenchymal tissue. Microscopic examination showed a very extensive fatty degeneration of the tubules, which is one of the characteristics of nephrosis. But it also showed a quite definite degree of glomerular involvement, rather more than is consistent with pure lipoid nephrosis. I think one would have to group the case under both nephrosis and nephritis. A certain definite proportion of cases of nephritis seem to start as nephritis, seem to progress thereafter entirely or chiefly as nephrosis. They show little or no increase in the symptoms more or less directly referable to glomerular involvement. The blood pressure does not go up, nitrogen retention is not marked. On the other hand the edema and the blood chemical changes, that is, high cholesterol and diminished proteins, suggest that the tubular lesion from that time on is the more active and important element. This interpretation of the process receives confirmatory support so far as this case is concerned from the manner of death, because a very striking number of cases of nephrosis die of pneumococcus infection. For some peculiar reason peritonitis is rather more frequent than pneumonia, usually a primary pneumococcus peritonitis.

There was a bronchopneumonia here; at least consolidated nodules could be felt on the bases of the lungs. Everywhere we found evidence of edema. There was fluid in both plural cavities. The heart did not feel enlarged. The other organs were essentially negative.

DYSPNEA

(Case 15331, Case Records of Mass. Genl. Hosp., from New Eng. Jour. of Med., Aug. 15, 1929. p. 331)

A Chinese restaurant manager fifty-three years old entered March 12 in extremis. His chief complaint was dyspnea. The history was given by his wife. Its reliability and completeness are questionable.

Except for nocturia for years he had always been perfectly well until five months before admission. Then he began to be dyspneic on exertion, to find that two pillows were more necessary than before, and to have edema of the ankles at the end of the day, passing off at night. After a doctor had put him to bed for two weeks and given him digitalis all the symptoms subsided and the patient returned to work, continuing to take digitalis. He had only occasional edema, slight dyspnea and a tendency to easy fatigue until fifteen days before admission, when his ankles began to swell more than usual. March 1 he vomited, felt weak and ill and had a return of dyspnea. Since that time he had been in bed. March 5, although he was in bed the dyspnea became worse and he had orthopnea. He was put on three digitalis pills a day and other medication. The night before admission he was much worse, delirious, vomited three or four times and breathed heavily, clutching at the clothing at his neck. He apparently

had trouble in seeing, as he kept complaining of his glasses.

His wife knew of no familial disease and said that he had no bad habits. His work was not strenuous, although the hours were long.

He had not been ill before in twelve years of marriage. The past history was negative.

Clinical examination showed a well-nourished Chinaman with Cheyne-Stokes breathing, restless during the periods of rapid breathing. There was questionable jaundice of the skin and sclerae. Tongue dry and leathery. Breath somewhat acidotic and ammoniacal. Throat dry. At the left base in the back there were medium moist rales, slightly increased voice sounds, no dullness. Apex impulse of the heart felt; location not recorded. Heart moderately enlarged. Rhythm regular except for a tendency to extrasystoles in runs of 20 to 40. Second sound reduplicated over the whole precordia and very loud. A loud rough systolic murmur heard at the apex and in the pulmonic area. Pulses wiry with little volume. Blood pressure 200/160. Abdomen not distended. A slightly tender liver felt two centimeters below the costal margin. Pupils pinpoint equal, regular. Fundus examination showed moderate choking of the discs with considerable exudate; the vessels engorged; several small hemorrhages seen. The examination was difficult because of poor cooperation. Knee jerks normal. Ankle jerks not obtained.

Urine not recorded. Blood: 17,100 leukocytes, 92 per cent polymorphonuclears, homoglobin 80 per cent, reds 6,290,000. Smear showed definitely abnormal red cells, monocytes, microcytes, tailed cells and nucleated red cells. White cells and platelets normal. Non-protein ntirogen 80 milligrams. Creatinin 2.9 milligrams.

Temperature 99.6°. Pulse 100. Respirations 16.

After a subpectoral infusion the patient was quite active. The blood pressure was 210/180. Venesection was done, but only 150 cubic centimeters of blood was obtained because of the patient's restlessness. The evening of admission he suddenly died.

Discussion by Dr. F. C. Jordon

The history of this case is very meagre, yet there are sufficient factors which point to heart failure probably due to hypertensive heart disease. Edema of the ankles with dyspnea that disappeared with rest in bed and digitalis therapy and which reappeared and gradually increased after he resumed his normal duties is so common in cardiorenal insufficiency that it is almost pathognomonic.

Let us first examine the heart: We find it was moderately enlarged; a loud, rough systolic murmur. Is this an organic heart disease following an earlier endocarditis with deformity of the valves or is it due to a hypertrophy and dilatation of the heart caused by hypertension? There is no history of any previous rheumatic attacks or previous attacks of cardiac decompensation. Also, you would not expect rheumatic heart disease to first occur in a patient of this age. A hypertensive heart disease is not uncommon at the age of 56 and we have two blood pressure reports of 180/160 and 210/180. These were taken the same day that he died. In all probability his blood pressure had been even higher than this and he probably had had high blood pressure for a long time. The loud systolic murmur was probably due to dilated valve rings in a failing heart.

Did he have much involvement? There were no urinary examinations made but his non-protein nitrogen and creatinin were considerably higher than normal. He also was in a uremic state with Cheyne-Stokes breathing, was restless and in a semi-stuperous state. Sometimes we find this apparently uremic state in patients who have very little involvement of the kidneys, but have a marked edema of the brain. We are inclined to think that edema of the brain caused the symptoms rather than true uremia. Examination of the red blood cells shows an abnormal increase of red cells. This was, probably, due to cyanosis. He had a leukocytosis of 17,000 with 90 per cent polys. This we believe was caused by an infective process somewhere in the body. The common infective process in cases of cardiac failure is bronchial pneumonia and the chest findings could easily be explained by a broncho-pneumonia, passive congestion of the lungs or both. Therefore, our diagnosis is arteriosclerosis, hypertensive heart disease, some arteriosclerotic changes in the kidneys and a terminal bronchopneumonia.

(Note:—For lack of space the general discussions by Dr. Cabot and physicians are omitted, and the summary of diagnoses given below, with the pathological discussions):

Clinical Diagnosis (from hospital record): Chronic nephritis with hypertension; hypertensive heart disease; uremia.

Dr. Richard C. Cabot's Diagnosis: Chronic vascular nephritis; uremia; hypertrophy and dilatation of the heart; chronic passive congestion of all the organs; terminal infection, probably pneumonia; anemia.

Diagnostic conclusions by members of the Phoenix Clinical Club, when case was presented before them, were as follows:

DR. H. P. MILLS: Arteriosclerotic disease of kidneys, with renal insufficiency and hypertension; dilatation of heart; cerebral arteriosclerosis and cerebral edema.

DR. J. M. GREER: Arteriosclerosis; endocarditis; edema of lungs; hepatic cirrhosis; polycythemia, moderate degree; immediate cause of death probably embolism.

DR. O. H. BROWN: Hypertension; arteriosclerosis; arteriosclerotic kidney; terminal pneumonia.

DR. V. RANDOLPH: Hypertension; arteriosclerosis, general and renal; pontine hemorrhage; terminal pneumonia.

DR. F. J. MILLOY: Hypertensive heart disease; arteriosclerotic nephritis.

DR. T. T. CLOHESSY: Chronic parenchymatous nephritis; cardiorenal disease; eye grounds and urinalysis distinctive; blood pressure characteristic.

DR. FRED HOLMES: Hypertensive cardiovascular disease, the condition being probably that of renal arteriosclerosis with renal insufficiency and chronic endocarditis; there was likely a terminal bronchopneumonia.

PATHOLOGIC DISCUSSION

Tracy B. Mallory, M. D.

Anatomic Diagnoses: (Primary), generalized arteriosclerosis, arteriolar type.

(Secondary), hypertrophy and dilatation of the heart; infarct of the lung; chronic passive congestion.

I am afraid I cannot entirely agree with any of the diagnoses presented, though I am not sure mine are right. On one point I agree. The man had pri-

marily arteriosclerosis. The question is in which particular organ it was most marked.

The kidneys at post mortem weighed 327 grams. That is a fairly good weight, slightly below normal but not greatly. The capsules stripped with some difficulty and left a finely granular surface, but the cortex was not greatly thinned. The arterioles were widely and diffusely involved, but there was comparatively little extension of the process to the glomeruli. I should not expect the man to show uremia from those kidneys. One other possible explanation of his cerebral symptoms of course would be arteriosclerosis in the brain, and that was found, rather diffuse, without any lesion that could have given localizing symptoms, no softening, no hemorrhage. There was an actual thrombus in one area, but it was not sufficient completely to obstruct the circulation, so that no actual softening was produced.

The heart was enormously hypertrophied and all the cavities were dilated. Except for a slight degree of arteriosclerosis there were no valvular lesions of functional significance. One of the coronary arteries showed quite marked narrowing, but not sufficient to cause occlusion.

My feeling is that it is a case of very wide-spread, diffuse arteriosclerosis throughout the body, involving the brain, kidneys and heart in approximately equal proportions.

There was some fluid in each pleural cavity, 400 cubic centimeters on the left, 200 cubic centimeters on the right. There was an infarct in the right lower lobe approximately 3 centimeters in diameter, and I think that was probably the reason for the leukocytosis.

Dr. Cabot: I do not think we differ much. Dr. Mallory's findings are compatible with our diagnosis of hypertension. He says also chronic nephritis but that he should be surprised if it caused uremia. Chronic nephritis produces uremia, and the patient, not the pathologist, determines how much nephritis is necessary to produce uremia. With such things as this patient had, with so high a non-protein nitrogen and creatinin, with such a breath, it seems to me that Dr. Mallory must agree that it might be uremia.

Dr. Mallory: One point of interest is that a certain degree of kidney insufficiency can be produced by cardiac insufficiency of a temporary character. A man with kidneys of this type I should not expect to show renal insufficiency as long as his heart kept going. This type of vascular nephritis plus cardiac failure might result in fairly acute renal insufficiency.

Dr. Cabot: Dr. Mallory would say that the vascular condition of the brain would produce vomiting. It is hard to prove uremia. We could say that the heart gave out, thereby causing congestion of the kidney on top of some renal insufficiency due to some kidney disease. That is a good way of putting it. After having seen this post mortem should you think that he had a quite diminished urinary output?

Dr. Mallory: One can only guess as to that; but this is the type of kidney we ordinarily see in men with a large dilute urinary output, with a slight degree of inability to concentrate, but ordinarily no nitrogen retention until very late in the game. They usually die of cerebral hemorrhage or heart failure before the kidney shuts down. There are some cases of vascular disease of the kidney in which the renal lesion progresses so fast that the patients die of uremia before the secondary changes take place in the heart or brain. Those are distinctly uncommon, perhaps one to ten cases of the hypertensive type.

CASE OF COUGH AND VOMITING

(Case 15151, Case Records of the Mass. Genl. Hosp., from New Eng. Jour. of Med., April 11, 1929, p. 779.)

Discussed by

Dr. A. C. Kingsley.

(Before Clinical Club of Phoenix)

A married American woman twenty-two years old entered May 25 for study of a chest condition. The chief complaints were vomiting and cough of two weeks' duration.

January 21, four months before admission, she was normally delivered of her second child. A report from the hospital states that the child developed gonorrheal infection of the eyes and that the mother said her first child, born two years earlier, had the same thing. There were no complicating factors in the second delivery except that she lost, the doctor told her, a great deal of blood. On returning home two weeks later she was so weak that she was unequal to any exertion and felt tired out all the time. In two months she had regained a good deal of strength. Three weeks before admission she worked very hard in moving her household goods and also got wet through in a rain. She developed a hard hacking cough, unpoductive at first, but so severe that the paroxysms bent her double and left her exhausted. She began to have nausea and vomiting and could keep nothing down. She called a doctor, who found no temperature, lungs normal, and put her to bed. She stayed there three days, then got up, feeling no better. Two weeks before admission while working one evening she suddenly felt weak and nauseated. She had a prickling sensation in her arms and hands, everything turned black before her eyes and she fell unconscious. Her husband found her vomiting, very pale, cold, trembling, cyanotic about the lips, with twitching of the muscles and very rapid heart. The following day she was very weak and half asleep all the time. Following this her cough became less hacking and produced small amounts of salmon colored sputum. She now had somewhat less vomiting and could usually retain one meal a day. She continued very weak and often had mild sweats. At one of his visits the doctor said her pulse was 130 but her temperature sub-normal. A week before admission she began to have a rattle in her throat which made her respirations very noisy. She could however stop this by coughing up sputum. Her cough was less severe and less paroxysmal. She noticed that she had lost about fifteen pounds in three weeks. Six days before admission she coughed up some blood-streaked sputum. She began to be unable to sleep because of orthopnea. She had a sensation of a lump in her throat, relieved by sitting up. Since that time she got what little sleep she had sitting up in a chair. Four days before admission a consulting physician said she had some water on the right lung.

Her family history shows heart trouble in a grandfather and the death of an uncle from tuberculosis.

Twelve years before admission she had a slight illness which was called appendicitis. Two years later she had a mild case of influenza. Two years before admission, in the fifth month of her first pregnancy, she was in a hospital for study of abdominal pain thought possibly to be appendicitis. Before the birth of her first child, four months later, she had nosebleed and began to urinate once at night. This had continued ever since. Two urine

examinations in the hospital showed a slight trace of albumin and a few leukocytes. A third specimen on the day of discharge showed complete reduction for sugar; a fourth showed no reduction. The blood pressure at admission was 140/70 and at discharge 130/75. She reentered the hospital and was normally delivered. The hospital report does not mention gonorrheal infection of the eyes. The patient denied lues and Neisser infection by name and all symptoms. Since her first delivery she had slight white vaginal discharge. A year before admission she weighed 117 pounds, her best weight.

Clinical examination showed a fairly well developed, poorly nourished girl with pale skin and slightly cyanotic lips. Chest symmetrical, but expansion less on the right. Signs of a small amount of fluid at the right base. Right back dull, with medium and coarse rales at the scapular region. Left back slightly dull at the scapular region, with increased fremitus and medium moist and crackling rales. Heart normal except for a low, short systolic murmur at the apex. Blood pressure 190/140 to 112/65. Abdomen negative. Pelvic examination showed some procidentia and retroversion, with lacerated cervix and some tenderness in the vaults.

Urine: Amount normal, specific gravity 1.014 to 1.003 (at a two-hourly test 1.005 to 1.012), a slight trace to a large trace of albumin at all but one of 19 examinations; two catheter specimens showed occasional leukocytes and epithelial cells, one showed rare red cells. Renal function: two tests 0, one 5 per cent. Cultures of the two catheter specimens both showed no growth. Blood: 7,200 to 6,000 leukocytes, polymorphonuclears 64 per cent, hemoglobin 60 to 70 per cent, reds 3,500,000 to 4,300,000, slight anisocytosis, poikilocytosis and achromia, platelets normal. Non-protein nitrogen May 26, 80, increasing steadily to 270 July 12. Creatinin 5.7, increasing to 15.2. Uric acid 7.4 to 11.5. Phosphorus 8.6 to 16.2. Hinton negative. Sputum: no blood or tubercle bacilli at four examinations. Stools: guaiac strongly positive at one of four examinations, questionably positive once. Urethral and cervical smears showed no Gram-negative diplococci.

X-ray examination. The left diaphragm was distinctly seen, sharp in outline. There was some mottled dullness extending outward from the left hilus. The right diaphragm could not be made out. There was decreased radiability of the lower two-thirds of the right lung field. The border of the heart was distinctly seen. The right apex appeared normal. Another examination three days later confirmed the previous findings. The costophrenic sinus on the right was obliterated. There was mottled dullness at both lung roots, more on the right. On this side it extended outward and downward along the course of the bronchi. The interlobar septum was visible on the right. All the lung markings were thickened and beaded. The upper portion of the lung fields was clear.

Temperature normal until May 30, then elevated for five days, reaching 102°, afterwards normal except for a slight elevation to 99.6° June 13 to 15, and a rise to 102°-99.7° three days before death. Pulse 70 to 128. Respirations normal.

May 27 examination showed a shower of medium crackling rales in the left midscapular region. May 31 there were signs of consolidation in the right midlobe and part of the lower lobe, possibly with a small amount of fluid. The following day in addition to nausea and gastric instability she complained of pleural pains along the lower sides of both chests. The night of June 3 she had an acute episode with weakness and syncope accompanied by vomiting and a very feeble pulse. The heart was rapid and regular but showed gallop rhythm. The process in the chest cleared slowly and in two weeks was practically gone. June 9 there was some edema of the face and abdomen. June 15 the blood showed a marked increase in phosphorus (13.3), creatinin (9.5) and non-protein nitrogen (140). She had some pain and redness of the smaller joints. X-ray examination June 18 showed the heart shadow prominent in the region of the left ventricle. June 22 it was thought that a rough localized pericardial friction rub was heard. There was some twitching of the muscles. The patient at no time had a true convulsion. She became increasingly drowsy. The hemoglobin fell to 35, the red count to 1,875,000. A cellulitis developed over the right buttock. The leukocyte count was 17,200. The gums oozed a little blood. July 15 the patient died.

DISCUSSION

After reading the case history and arriving at a tentative diagnosis, I have searched for the exciting factor that the history might be complete. We have no history of scarlet fever or any other infective disorder. A supposed appendicitis years ago, also a mild influenza ten years preceding her fatal illness can hardly be considered.

Her two children developed gonorrheal infection of the eyes. However, I do not believe gonorrhea played any part in the etiology. Two years before admission, she was in a hospital suffering abdominal pain. Following this, she had nose bleed and had to get up at night to urinate. She was pregnant and the urine showed a trace of albumin. The blood pressure was somewhat high. Here, then, we find definite signs of a definite illness which later produced general weakness, cough (without marked expectoration), afternoon headaches, prickling sensation in her extremities, periods of unconsciousness with twitching of the muscles and semi-stupor, vomiting and rapid pulse. Later, there was some productive cough with blood streaked sputum, dyspnea, evidence of bronchitis, small amount of pleural fluid and slight edema.

On admission to the hospital, she was found to have a systolic murmur at the apex which was probably due to beginning dilatation, as there was no previous mention made of it. Her blood pressure was variable, 190/140 to 112/65. Urine of low specific gravity; renal function only 5 per cent; moderate grade of secondary anemia; nonprotein nitrogen greatly increased as was the creatinin, uric acid and phosphorus. Stool gave positive guaiac test.

Toward the close there was some evidence of an acute process in the chest, suggesting a possible bronchopneumonia. However, as a whole, I believe the findings were those of a passive congestion; also irregular temperature, swelling of some of the small joints, pericardial friction rub, cellulitis over right buttock, suggest some infection, the source or nature of which I do not know.

The exciting cause of her fatal illness is rather obscure, possibly a complication of her first pregnancy or unrecorded infection of early life. The outcome was early forecast by the low renal function. We have at this time positive clinical as well as laboratory findings from which to make a diagnosis which is:

(1). Diffuse glomerular nephritis with probably some involvement of the tubules.

(2). Passive congestion of the liver, spleen, stomach, intestines and lungs.

(3). Dilatation of the heart.

DIAGNOSTIC SUMMARIES

DR. O. H. BROWN: Diffuse glomerulo-nephritis; streptococcic pancarditis; chronic cardiac dilatation; hypertension; arthritis; secondary anemia; cellulitis of the buttocks; procidentia and retroversion; laceration of the cervix.

DR. FRANK J. MILLOY: Chronic diffuse glomerulo-nephritis; terminal uremia.

DR. F. C. JORDAN: Chronic diffuse glomerulonephritis; uremia.

DR. H. P. MILLS: Subacute glomerulo-nephritis with renal insufficiency; right pleurisy with effusion; subacute bacterial endocarditis.

DR. T. T. CLOHESSY: Nephritis with usual complications or results, cardiorenal disease with high blood pressure, pulmonary disturbance.

DR. W. W. WATKINS: History suggests non-tuberculous lung or pleural disease, heart or pericardial disease. Clinical examination tends to establish lesion of right lung and pleura. Laboratory brings kidneys into picture, while x-ray confirms right lung and pleural lesion. Diagnosis, subacute glomerular nephritis; non-tuberculous infection of right lung and pleura; terminal sepsis.

(Note:—For lack of space, the general discussions of Dr. Cabot and others are omitted, and the final autopsy findings and discussions only are given).

Clinical Diagnosis (from hospital records): Chronic nephritis; uremia.

Dr. Richard C. Cabot's Diagnosis: Chronic nephritis, probably glomerular; secondary anemia; bronchopneumonia and pleurisy, right; cellulitis of the buttock; posisble acute pericarditis; hypertrophy of the left ventricular wall.

DISCUSSION OF AUTOPSY FINDINGS

Dr. Tracy B. Mallory

Anatomic Diagnosis: Chronic glomerular nephritis; cellulitis of right thigh; atheromatosis; slight cardiac hypertrophy; fibrinous pericarditis; acute colitis.

DR. TRACY B. MALLORY: This patient did show a chronic glomerulonephritis. The kidneys were considerably atrophied, the combined weight of the two being only 130 grams. The capsules stripped with considerable difficulty, leaving coarsely granular, grayish surfaces. The cortex was so narrowed as to be barely discernible above the base of the pyramids. She had an anomaly of the pelvis and ureters on both sides in the form of a marked narrowing or stricture of the pelvis just above its juncture with the ureter. I do not believe however that it had anything to do with her symptoms or the development of the renal lesion. The process was symmetrical on two sides, and in all probability was a congenital anomaly. Strictures of congenital origin are sometimes found at the spot where the pelvis of the kidney joins the ureter.

The heart was very slightly hypertrophied. There was a slight degree of fibrinous pericarditis, and a slight colitis of the type that we usually see in uremia.

Microscopic examination of the kidneys showed the vast majority of all the glomeruli completely sclerosed. The process was evidently so old that there were very few traces of the original stages left. The only acute lesions present in the kidneys at all were vascular ones.

She had also a quite acute type of atheromatous deposit in the aorta. The entire intima was studded with minute yellow plaques. I think that perhaps the progression in this case is to be explained by a vascular process superimposed upon a very old chronic glomerulonephritis. There seems to be no evidence that the glomerular lesions as such had been progressing recently.

The other important finding and the immediate cause of death was a cellulitis of the right thigh.

REPORT OF THE MEETING OF THE AMERICAN COLLEGE OF PHYSICIANS

Minneapolis, February 10-14, 1930

M. K. WYLDER, M.D., F.A.C.P.,
Albuquerque, New Mexico

(Read before the Bernalillo County Medical Society, at Albuquerque, N. M., March 5, 1930.)

The first address of welcome was by Dr. Elias P. Dyon, dean of the University of Minnesota Medical School, who said he had hoped that several others would have spoken before he did; that an address of welcome was much like the old-fashioned game of "Hot and Cold." You were cold when you got away from the subject and warm when you got towards it and that he had hoped someone else would have warmed up the audience before he came on, but he said he wanted to tell us something about the Medical Department of the University of Minnesota. It first started as an Examining Board for the purpose of examining physicians who wanted to be licensed in Minnesota, that there had been several small schools in Minnesota, but they had at last all been absorbed. Now Minnesota boasted only one medical school. Their school was among the first to insist on a four year course; the first to insist on a two year college course and the first to require an internship. They also have a graduate school and do considerable research work. He said, he did not want us to confuse the warmth of their welcome with the out-door temperature.

Dr. Edward L. Tuohy, president of the Minnesota Society of Internal Medicine, stated it was a great pleasure to welcome the doctors here, and that they had decided to have the College welcomed by physicians instead of calling in, as they did in some places, the mayor, sheriff and chief of police. He thought there was getting to be quite a plethora of medical societies, so that while specialism served a good purpose, he wondered if we were not getting too many specialties. He told of a Minnesota Congressman from

one of the agricultural districts who went down to Washington and attended some state function. He saw a man decked out with a great many medals and timidly asked him what he was. His answer was "I am a Naval Surgeon," to which the Congressman responded "Gosh! how they do specialize." He said the public feels that specializing has increased the emoluments and limited activity, however, that medicine had advanced more in the last quarter of a century than in the previous four hundred years. He said that coordination of hospital staffs will make for greater progress. He also said that the American College of Surgeons had tuned up the hospitals and that he felt it was up to the College of Physicians to see that proper use was made of these hospitals. He said that of all the healing cults, the chiropractic schools are the only ones who have all their students in one class.

Dr. E. L. Gardner, president of the Hennepin County Medical Society told us he wanted us to feel very welcome to do anything we wanted to. He said if any of us wanted to fish, Dr. White would arrange to have a little ice cut out of the river so that we could go and fish; he wanted us to do the things we would like to do.

Dr. John H. Musser, New Orleans, president of the American College of Physicians, replied to the addresses of welcome. He stated he was glad to be in Minneapolis; they had a delightful climate and he wanted to compliment Dr. White on the wonderful program he had arranged. He said he would like to ask one question, how Minneapolis got his name. It seemed a little inconsistent to him to have an Indian name with a Greek root, however the College was deeply grateful for the invitation to visit and was sure we were going to have a wonderful meeting.

Dr. Ross A. Garder read a paper on "Colloids in Medicine." He said colloids was the chemistry of films, surfaces and interspaces induced by free energy in the interspaces. He said one cubic centimeter of matter contains particles, which numbered 1 with 21 ciphers following it, and that these particles have a surface area of seven thousand feet. He stated the human body is composed of chemical matters of five groups; proteids, carbohydrates, hydrocarbons, salt, and water and other compositions of which we know very little. He said that the energy of the colloid is surface energy,—surface films in different form. He stated a liver cell contains two hundred twenty-five billions of the finest divisions. That the human body was 65 per cent water and that medusa is 99 per cent water. He said living water is different from water in bulk. Fever would result in a reduction of the free water and bound water in the body. That there was more bound water in the muscles of young animals than in the old. Robinson's work indicated that anesthetics and drugs produced changes in their relation of bound water, and if this work is borne out, much of our physiology will have to be rewritten. This article might be considered purely high-brow and I was much gratified to hear several professors from big universities say that most of it went over their heads, because it put me in their class.

Dr. Louis J. Pollock, of Chicago, spoke on "Cerebral Localization." He stated given centers were not located much until 1870. That cerebral localization of the chief functions are not known and that localization of injuries and diseased areas is now possible. Most tumors may now be localized. The purpose of this paper is to point out some of the points in localization by signs and symptoms. The thing is to locate them as early as possible because after we wait until the signs delevop with great definiteness, we will make our diagnosis, but it will be too late to do the patient any good. He feels that imperfect observations are the cause of more mistakes than ignorance. Reflexes will help to determine paralysis in semiconscious patients. Let the arm fall; if paralyzed, it will fall freely; on the unparalyzed side it will fall slowly. Slight differences may be elicited by careful observation. The nasa-labial fold when depressed, disappears on the affected side. The head rotated to one side, the eyes rotated to the other may be noted in ocular paralysis. The face in repose may show a difference. Raise the unaffected side and the affected side will be lowered and vice versa.

Dr. Walter Freeman, of Washington, "The Psychological Panel in Diagnosis and Prognosis." He started out with the statement that to know an organ is good: to know the patient, however, should be the goal. He dwelt on the relationship between the person and disease. Human nature does not admit of classification. He divided people into four types: schizoid, paranoid, cyclic and epileptoid. He stated the schizoid is shut-in and dreamy; that the paranoid is aggressive and holds a grudge; is always suspicious. The cyclic type is the fellow who enjoys himself and everything pleases him, but he is incapable of prolonged application. The epileptoid type is pedantic and has outbursts in which he may resemble some of the other types. He is usually devout and eccentric. In the evaluation of personalities we should

consider the patient as a unit. That disease is a reaction of the individual to pathological processes. That it is necessary to pay attention not only to the seed of the disease but also to the field in which the seed has fallen. The schizoid type blames himself; the paranoid blames somebody else and likes to talk of his troubles: the cyclic type has friends and hobbies; the paranoid has few and is easily depressed. He said we should rise above the stage of treating disease and treat the patient. We should study the personality and find out how the patient reacts to his troubles.

Dr. Walter C. Alvarez, of Rochester, Minn. spoke on "Gastro-Intestinal Troubles that Now Go Undiagnosed:" he stated that text books mislead us, very frequently the fellow who writes a text book would not recognize many of the diseases he describes. Thirty years from now we will wonder how it was that back in 1930 so many people with serious symptoms were classed as neurotics. In a long list of cases, that were undiagnosed, with gastro-intestinal symptoms, 77 of them were cholescystisis, 42 duodenal ulcer, 17 appendicitis, 7 gastric ulcers, two were carcinoma of the stomach, one was fibromyoma of the pylorus, one was hernia of the diaphragm, one chronic ulcerating colitis, two chronic mesenteric nodes, two infection with ameba and three were cases of inflammation in the anal region. He stated that the most common operatioin for duodenal ulcer was appendectomy. Many functional disorders of the gastro-intestinal tract were due to fatigue, to marital infelicity, hysteria, psychopathy; constitutional inferiority, hypoovarian conditions, gastro-intestinal migraine, allergy and constipation.

Dr. Samuel A. Levine, of Boston, spoke on "Latent Hyperthyroidism Masked as Heart Disease." In this talk he gave a history of quite a number of people who had passed from one clinic to another, being treated for heart disease, when attention to the goiter gave them relief and he stated that when the true cause of these so-called cardiac cases was recognized, they received wonderful relief.

Dr. A. C. Ivy, Chicago, gave some "Observations on the Etiology of Gall Stones." Some were perhaps caused by ascending infection of bile tract, causing stone formation. Some were perhaps non-inflammatory or metabolic and others perhaps from the existence of inflammation in the bile duct. Albert states gall stones are due to the failure of the gall bladder to absorb cholesterin. Stasis is a factor in the formation of stone, but what causes stasis? He had proven by experiments of placing human gall stones in the gall bladders of dogs, that stones, the size of a pigeon's egg would be absorbed in three months. He had given some olive oil and others not, but the stones were absorbed at the same rate under both conditions.

Dr. Frederick Lord, of Boston, "The Significance of Atelectasis in Bronchopulmonary Conditions." He said atelectasis was of importance on account of the difficulty in diagnosis. Atelectasis may arise from encroachment as from pleural effusion, pleural air, from an abscess, or pericardial effusion. This compression atelectasis has definite symptoms, where you find diminished tactile fremitus, egophony, dullness, diminished voice, diminished whisper. Lobar pneumonia gives a minor degree of atelectasis. A foreign body will give atelectasis. Atelectasis is common; it is important and may be recognized by x-ray.

Dr. Frederick Epplen, of Seattle, gave moving pictures of the results of the use of "Stramonium in Cases of Encephalitis for the Relief of Parkinsonian Syndrome." Parkinsonian syndrome may appear as early as fourteen years of age, but usually appears at advanced age. It sometimes begins with a tic of the tongue, tic of the lip, jaw, ocular type; however, all of them are relieved by the use of stramonium. Vegetative nervous disorders yield to stramonium, but Parkinsonian symptoms are helped better. He gave large doses, 60 minims four times a day. He found it gave more marked relief in worse cases than in mild ones. Out of 46 cases treated, 70 per cent were relieved by stramonium. The non-Parkinsonian type are not benefited. He used the U.S.P. solution, fresh, with 40 minims three times a day and increased to 60 minims: then increased to 80 minims, if necessary. If stramonium does not work, he advises the use of hyocine and scepolamine. If these cause dilatation of the pupils, he counteracts this with ezerine. He had moving pictures of quite a number of cases showing both before and after treatment and his results were truly marvelous.

Dr. Geo. Fahr, Minneapolis, discussed the effect of "Generalized Arteriosclerosis upon the Heart and the Systemic Circulation." He stated that long continued high blood pressure leads to failure of the left side of the heart and coronary thrombosis: but the question is, what causes high blood pressure? He had developed an apparatus in which he passed fluids through a glass tube and the hardnee of the tube in his experiments, did not raise the blood pressure: however, the changes in the lumen of the tube would raise the

blood pressure. His conclusions were that it was not the hardening of the arteries that raised the blood pressure so much as the narrowing of the lumen of the blood vessels, because in his experiments the hardening of the tube did not increase the pressure or the amount of work, but the narrowing of the lumen did.

"Some Newer Aspects in the Problem of Essential Hypertension" were discussed by Dr. Norman M. Keith and James W. Kernohan of Rochester, Minn. They stated that there was a thyroid theory; that the adrenals were supposed to have something to do with it; i.e. hypertension, metabolic causes, aneurism, paroxysms of the blood vessels, and toxemia. Their conclusions were indefinite and we all felt that they had left us where they had found us.

"Retinal Changes" were discussed by Henry P. Wagner, Rochester, who also illustrated by a number of slides showing retinal vessels.

Dr. Elliot P. Joslin, of Boston, spoke of "Arteriosclerosis in Diabetes." He stated that during the last 15 years, the average age of diabetics had increased one year yearly; that in 1920 the average age of death was forty-one and that now the average age of diabetics in his service was sixty-three and one-half years. The diabetics are now dying old and the per cent of deaths from arteriosclerosis is increasing. He stated, however, that we would all die of arteriosclerosis if we live long enough; that, in the fourth decade of onset, the number of deaths from arteriosclerosis and diabetes has doubled. With an increased duration of five years, the per cent of deaths from arteriosclerosis increased 30 per cent; ten years 40 per cent; twenty years 68 per cent. Race always has its effect; diabetes among Hebrew women is increasing more rapidly than among the gentiles. One-sixth of all diabetic deaths in patients who contracted the disease before 40 years of age, died of arteriosclerosis and one-third of those over forty years of age. Children have arteriosclerosis; they do not die of it, but they have it; calcified arteries are found in non-diabetic children. He stated, that as diabetics were now able to get along on a more nearly normal diet than they ever were before, he believed this great increase in arteriosclerosis among diabetics would be checked. In over three hundred autopsies, he found no case of diabetes of over five years duration without some arteriosclerosis. His conclusions were that old age cannot be conquered, but premature old age can. He stated that ten years ago 25 grams of carbohydrates per day was as much as a diabetic could stand, now they are all getting from 100 to 125 grams per day and he believes that this more nearly approaching normal in the diet will help and that even a hyperglycemia at times may be a good thing for the patient.

Dr. E. T. Bell, Minneapolis, discussed the "Causes of Hypertension." Among others he mentioned hardening of the arteries and capillaries, together with narrowing of the lumen, vasomotor centers, the adrenals pressor substances, intracranial pressure, Roentgen-ray atrophy, stenosis of the renal vein, external sensory stimuli, adrenal tumors, renal disease, glomerular nephritis of eclampsia, bichlorite nephroses, polycystic kidney, urinary obstruction, degeneration of the small vessels. Dr. James L. McLester, who was to have described the treatment of hypertension was not there and we felt we did not know any more about hypertension after we had listened to them all afternoon than we did before.

Dr. Hilding Berglund, Minneapolis, "The New Possibilities in Classification and Treatment of Anemia," and treatment as we know it today. He enumerated as causes: pernicious anemia in pregnancy, in children after stomach resection associated with intestinal stenosis, lues, cancer of the stomach, von Jaksch's disease, dibothryocephalus latus, rickets, chloroses, toxic and non-toxic type. The therapeutics are arsenic, liver extract, cod liver oil and whole blood injections, transfusions.

"Curing the Ulcer Patient" by Dr. Seale Harris, Birmingham. This, he stated, did not consist of a routine diet list and stock prescription for alkalies. Lots of them receive no permanent relief from either and bad results from both medicine and surgery. Vomiting and hemorrhage are late symptoms. He believed that most cases, if diagnosed early, may be cured by a light diet and the removal of focal infections. He said attention is too often focused on the ulcer itself and not on the patient and the focus that is causing the ulcer. The first thing is to look for the cause, then remove it, and this is often a problem. Eating habits in most cases are to be corrected and faulty diet caused many troubles. He emphasized the low vitamine diet and high carbohydrates as the cause of much trouble. He said if we put them on a diet of white flour, with white rice, white potatoes, sugar, lean meat, etct., we will have trouble. The Sippy diet was a modification of Lenhart's, and also Einhorn's and Lambert's were from the same source. He also emphasized the use of orange juice and spinach and other vitamine containing foods. Tobacco should be

cut out. If any surgery was necessary it should be done by a competent surgeon. None but a well trained man should be permitted to do a gastro-enterostomy. He said it would discourage a great many amateurs if, every year, the results of all gastro-enterostomies could be published. The mistake a great many surgeons made was in turning the patient loose three weeks after the operation; they should be kept under careful observation and supervision for several months and after that a semi-annual examination will help prognosis.

Dr. Joe L. Miller, Chicago, "The History of Syphilis." Much of this is perhaps known to all of you. He emphasized the fact that syphilis was unknown in Europe previous to the return of the sailors of Columbus. That in 1495 it fisrt appeared in Europe; first, in Spain and gradually travelled through all the countries of Europe. There is no evidence that syphilis had existed in Eorope previous to that time. There is no pathological evidence among the Egyptian mummies that they were syphilitic. It first appeared in Japan in 1565. In England and Scotland they spoke of it as the French Disease; in France they spoke of it as the Spanish Disease and in Russia as the German Disease; in Italy as the Portuguese Disease and so on and so forth, each country blaming the country from which they thought it came, but he said, in fact, it should have been called the West Indian Disease as it was brought back, unquestionably, by the sailors of Columbus and was spread by the soldiers of Charles III.

Dr. Logan Clendenning, Kansas City, read a paper on the "History of Certain Medical Instruments of Precision." He first took up the watch. It was developed by Galileo; first the pendulum and with the pendulum he worked out a system of timing the pulse. The first watch was made in 1719. After this much was written about the pulse and describing the pulse of various diseases. Graves established the science of pulse counting and described the pulse in the disease that bears his name. The thermometer was also developed by Galileo. He first had a glass tube three feet long. Previous to time of the thermometer, heat was supposed to be matter, but after that, it was described as energy. The first accurate recording was made in 1850 with a thermometer made by Traube. With this thermometer it took five minutes to take the temperature. The first blood pressure was taken by an Englishman named Hale. He used a mercury apparatus. The first hypodermic was made by Francis Rynds.

"Spontaneous Pneumothorax" by Dr. F. J. Hirschboeck, Duluth, Minn. Spontaneous pneumothorax is relatively frequent and occurs more often in males. It occurs on either side and may be unilateral or bilateral. If bilateral, death does not ensue as is commonly believed. Sixty-seven per cent of spontaneous pneumothorax is due to tuberculosis; 32 per cent to empyema and bronchiectasis and one per cent to trauma. Pneumothorax is due to a rupture of the pleura. Very frequently the cause is not demonstrable and is difficult to establish.

Dr. Francis M. Pottenger, Monrovia, Calif., "The Healing of Tuberculosis." He said there was much mystery about the healing of tuberculosis. The healing of tuberculosis depended on many "different factors; the number of bacilli; the virulence of the bacilli; heredity; the resistance of the individual to disease; reaction of tissue to injury. Seasons play an important part; spring and fall are the worst time and summer is the best. Endocrines may raise the resistance. Efficiency of immunity increases or decreases as time goes on. A tremendous immunity is built up as the disease progresses. The object to be accomplished is to try to prevent the spread of the disease and build up resistance; in this rest is the most important factor and food next, fresh air, elimination of tuberculosis through the natural channels. He showed many charts and slides showing different rates of progress in different individuals.

Dr. Rhoda presented a case of a child four years old, native of Minneapolis, from whom had been removed a half dozen stones from the pelvis of the kidney. Anyone of these stones was as large as a pigeon's egg.

Dr. Platou showed several cases of children in whom he had used intra-peritoneal transfusion. He emphasized the fact that blood injected into the peritoneal cavity should be cross-matched with just as great care as if it were going into the blood stream. He stated that a rabbit was able to absorb one-fifth its own blood volume in four hours.

Dr. Julius H. Hess, Chicago, spoke on "Splenic Puncture as a Diagnostic Procedure in Infancy and Childhood." He stated a large spleen has not the significance in childhood that it has in later years. Many cases show a normal hyperplasia. He does a splenic puncture in this manner; first infiltrating the skin with novocain, then splitting the skin, pushing the needle into the spleen. He uses a needle not larger than No. 22 and with a very gentle suction, only withdrawing a few drops of blood and fluid from the spleen. He states by this method they have been able

to diagnose some cases that would have otherwise been missed.

Drs. George E. Brown and Paul O'Leary, Rochester, discussed "Studies in Certain Forms of Scleroderma." This paper was largely of pictures and slides showing some advanced cases that had been greatly relieved by a sympathetic ganglionectomy.

Dr. Leonard Rountree, Rochester, spoke on "Sympathectomy in Polyarthritis." He gave the history of a girl who had suffered six years with polyarthritis and who was relieved immediately by lumbar sympathectomy. After the lumbar sympathectomy she stated that she felt comfortable from her waist down, but that "Hell" was the only word that would express her feelings from the waist up. Later they did a cervical sympathectomy and gave her complete relief. A case of Reynaud's disease also got complete relief. He stated that in the chondro-osseous type of arthritis, the operation did not offer much. The periarticular cases offered a good prognosis.

Dr. Benjamin J. Clawson, Minnesota, "The Relation of Experimental Rheumatoid Inflammation to Allergy." He stated that hypersensitive people have inflammatory rheumatism and that the experiments he has been conducting definitely showed that practically all rheumatic people are allergic.

Dr. James B. Herrick, Chicago, read a paper in "Defence of the Stethoscope." He said the x-ray man should examine all of our cases. That the stethoscope has a part that cannot be neglected. The stethoscope may discover pathology that the x-ray does not show. Diastolic murmurs tell more than the heart shadow. Palpation tells more than a picture. The electrocardiograph is a great help but only a careful history and examination will bring out all the points. These instruments are all allies and should not be considered as enemies. Formerly, much that these newer agencies tell, was found at the autopsy. While they are lazier methods, all should be used in order to bring out a complete picture. The stethoscope keeps the physician close to the patient and helps maintain the professional touch. Jumping to conclusions on a slight examination causes misinterpretation. All methods mislead you at times and only warn you that conclusions should never be jumped at. There is a tendency to underestimate the systolic murmur. They should be investigated and studied thoroughly; put all the findings together. He made a plea for the sane use of every means that may be used and said, "Don't let physical examination become a lost art."

"Rectal Temperature Curves; Normal and Abnormal," William B. Breed, Boston. In rheumatic infections in children, fever seems to be the best index of active infection. If the temperature remains below 99.8, it is difficult to decide whether to call them active or not. Perhaps many of them were kept in bed longer than was necessary. In 4800 readings on supposedly normal children, only 26 were above 99.6. They had worked out a recording device with thermometer inserted in the rectum that would give a continuous graphic record. With this instrument, he had taken temperatures for several days continuously in order to try to determine what the normal averages of temperature are. They had been working with this for several months, but have not collected sufficient data as yet to draw conclusions, but as far as they could now tell, some normal children had a fluctuation of from one to two degrees in the 24 hour period.

Dr. James H. Means, Boston. "Resume of Our Present Attitude Regarding Iodine in the Treatment of Goiter." Iodine in goiter conclusions seems to be definite. Metabolism drops five points a day in toxic cases and much less in normal cases. It has very little effect in cases of adenomatous goiter. Geographic differences must be borne in mind. Iodine reduces the extent of thyrotoxicosis but does not shorten the disease. He stated he had never seen a case made worse by iodine nor do they become intolerant. The dose is a matter of interest; it varies in individual cases. One-half drop dose in some cases is sufficient, larger doses may not be necessary but they do no harm. The large dose used by Plummer is not necessary in Boston; however, he stated, that Plummer lived in a goiter belt and that Boston is not. He gave the uses of iodine as three-fold; to prepare patients for operation; to control the residual thyrotoxicosis after operation; and for treatment per se in mild cases. Many mild chronic cases can be handled satisfactorily by iodine alone. However, he gave this warning, that in the toxic type that has been brought back to normal by Lugols they should be operated on because the toxicity will return and you may live to regret that you did not have them operated on when you had a chance. In the mild chronic type he considered iodine as curative.

Dr. A. B. Brower, Dayton. "Unusual Addison's Syndromes." He spoke of anemia and said that Addison described a clinical and not a pathological syndrome. Syphilis of the adrenals may cause Addison's syndromes. He enumerated the following symptoms: painful asthenic adrenal insufficiency; pigmentation; hypotension; gastro-intestinal disturb-

ances; loss of weight; lumbar and abdominal pain; syncope and collapse; systolic pressure of less than 100; melanosis.

Dr. Clyde Brooks, of the University of Alabama, described the new method in the "Treatment of Pellagra." He stated that pellagra is produced by a fungus which grows in the intestinal tract of individuals in warm, moist climates; the fungi are not developed in cold climates. The treatment consists of predigested protein given intravenously every 24 hours and a diet rich in vitamines; raw liver cocktail, two cups a day. On this treatment the skin and tongue readily clear up. He further stated that in every case of pellagra the stool should be examined for parasites.

Dr. J. A. Bargen, Rochester. "Multiple Polyposis of the Colon." He stated that ten per cent of cases of ulcerative colitis develop polyposis. Whence they come and where they go is like the riddle of the Sphinx. He says there is a similarity between the intestinal polyposis and areas of hyperplasia. His idea is that these polyps are strips of almost detached mucosa, inflammatory in nature, first becoming elevated and finally pedunculated and they are not true adenomatous polyps. However, these polyps do not become malignant. These polyps tend to disappear as the inflammation subsides. Proctoscopic examination and roentgenogram give the most information. Barium enema is the best method to use. The nature of these polyps is hard to learn and their mortality is high.

Dr. Jules Hess showed pictures of children at the Cook County Hospital suffering with rabies; showing the actions of these children up to the time of death. Some of them were in convulsion up till just immediately before death. He stated that if a child had been bitten by a dog of which there was any suspicion, to give the dog a hypodermic of apomorphine. If it is a perfectly healthy dog the vomitus would be simply the food he had eaten; but if rabid, the conetnts would have bits of wood, parts of soles of shoes and almost anything he might have gotten hold of, in his stomach.

Dr. Leo Loeb, St. Louis, opened the Symposium on Cancer. He spoke on the "Etiology and Biology of Cancer." He stated that cancer cells were embryonal tissue cells stimulated by proliferates and ameboid movement. Various kinds of stimuli, mechanical, chemical have the same effect. If this stimulation is continued long enough it will produce what we call cancer. Pathological stimuli acting as a prolonged irritation on embryonal tissue may be transformed into cancer. Heredity is a large factor. Cancer does not differ from other conditions which are affected both by heredity and environment. Cells carried by the blood stream establish metastases between the extreme malignant and the benign. All kinds of anomalies exist. He stated that cancer cells are potentially immortal; that cancer cells can be transplanted. Metastases are auto-transplants. Cancer cells damage tissue by abnormal production of metabolism. Many tumors can be transplanted to other animals of the same type. Antigens of lipoid character have been found in these antigens and not found in human tissue, but are found in cancer tissue. He stated that there was a possibility of micro-organisms aiding in cancer production. These parasites may give off a substance that irritates the tissue and so cause cancer, but this has not been proven. It does work in chicken sarcoma but not thought to work in mammals. Sometimes stimuli, as cold, may cause cancer.

"The Nature of Heredity in Animals," H. Gideon Wells, Chicago. Study of cancer in animals will help to get started on the nature of cancer in man. Cancer in animals is the same disease as it is in man. The laws of Mendel have been proven in plants, animals and man. In most animals, the mammary gland is frequently involved. Experimental study in animals can be followed by transplantation. Transplanted cancer behaves very differently from hereditary cancer. Heredity does modify the spread of cancer. Heredity sometimes directs the location of cancer. Some mice have cancer in the mammary glands, other strains develop cancer in the lungs.

Dr. A. S. Warthin, Ann Arbor, spoke on "Cancer in Man." He stated all the work done so far has not made a very deep impression; that statistics so far amount to very little. He took four hundred histories of cancer in the Ann Arbor Hospital during the years 1907 and 1908 and found the histories only showed a family tendency in less than one per cent. He then put a special investigator to work upon these histories and was able to get a family tendency in 50 per cent. The reason for this is not a careless history, but is due to the fact that people are ashamed of cancer in their families and try to cover it up much as they do syphilis. He stated in families in which there was a tendency to malignancy, all moles should be removed. They should abstain from smoking and from irritants. He was able to trace through quite a number of his families that there was a very distinct effect from heredity, taking one side of a cancer family who married into a non-cancer family and their

offspring were free from cancer and those who married into cancer families, all their children developed cancer. He feels that by studying the histories of cancer, cancer can be bred out and that this is the only remedy that looks to him as though it gave much hope.

Dr. Francis Carter Wood, New York, "The Principles of Radiation Treatment." Treatment depends on the distinctive effect of the short wave length, a wave length of 2 Angstroms or shorter. Raying living cells causes very little immediate change unless enormous doses are given. Immunity is produced by long radiation. Tumor cells do not gain immunity by radiation. We don't know why one cell is sensitive and the other not. He cited the case of a mouse who had three tumors in her breast, in which radiation killed one but did not affect the other two.

Dr. Edward Harbinson, Woodland, Calif., discussed "Undulant Fever in California." He stated there have been fifteen hundred cases of undulant fever reported in the United States during the past three years: that it often begins with a severe pain in the abdomen and there were several cases on record in which an appendectomy had been performed. Others begin with a pain in the joints. There is a continuous fever in nearly all cases. Undulant fever comes in most cases from raw cow's milk: however, the human race presents a very high immunity to undulant fever for they found that eighty per cent of the cows sending milk into San Francisco were positive for brucellus abortus and micrococcus miletensis, which have been proven to be identical. The diagnosis is made by the agglutination test, blood culture and skin test. Vaccine treatment is the most satsfactory treatment.

Dr. W. W. Simpson, Dayton, also discussed "Undulant Fever." As there had been several cases in their vicinity he had had ample opportunity to make his observations. He stated most of their cases began with a severe abdominal pain and that in three cases the pain was so severe that appendectomy was done on symptoms before diagnosis was made. In other cases the joint symptoms predominated. He concurred in the opinion of Dr. Harbison that vaccine therapy offered the greatest promise and his conclusions were that the closer examination of dairy herds was the way to check the spread of this fever.

Dr. Davis, Minneapolis, discussed "The Myxedema Heart." He said the first cases reported were reported by Dr. Geo. Fahr of Minneapolis. They were cured by thyroid and relapsed on stopping thyroid; however, some cases do not return. The dyspnea does not return but the edema reappears. Herrick reported an anginal attack disappearing after thyroid. Most of these cases have a normal blood pressure. Nine cases of myxedema out of twelve had myxedema heart and all were relieved by thyroid extract. These cases were characterized by the broad, expressionless face, dry skin, dyspnea, congested liver, minus basal metabolic rate. All were relieved by thyroid and all reappeared when thyroid was stopped. He said some men have sounded a warning against the use of thyroid in these cases but the author's experiments do not warrant it. He began with one grain twice a day and increased to one grain five times a day. They should be checked up every month by a basal metabolic reading and a complete diagnosis.

Dr. J. C. Meakins, Montreal, "Tetany." Tetany has been reported at times in epidemic form. It is now a question whether it is only a sign or a clinical entity. Tetany is associated with rickets. Tetany also appears to be due to an alkalosis. Tetany accompanies chronic intestinal disorders as sprue, in which the serum calcium is low. The parathyroid hormone controls it quickly. Chronic nephritis sometimes causes tetanic symptoms. The common signs are; Accoucher's hand; Trousseau's sign, dysphagia, aphonia and spasm, sometimes so severe that it is only relieved by a general anesthetic. Quick relief may be had by the inhalation of ten per cent carbon dioxide and ninety per cent oxygen. It seems probable that there is an unexplained alkalosis with an unstable nervous system. Some of these cases seem to be a distinct clinical entity due to the extraction of carbon dioxide from the tissues. He feels that acidosis has had a great deal of attention and that alkalosis should be studied more thoroughly.

Dr. James Burns Amberson, Loomis, N.Y., discussed "Pneumothorax." He said pneumothorax in the early stages of tuberculosis would be easy; however, seventy-five per cent of tuberculars are in an advanced stage before their trouble is diagnosed. Cavities not over three centimeters in diameter may close automatically. He stated tuberculosis spreads to adjacent tissue or infection is carried by sputum or carried by lymph or the blood stream. Patients who have never had cavities offer the best prognosis; healed cavities the next and cavities that are not healed the worst. Pneumothorax is not necessary in any closed case. It gives best results where only one lung has been involved and this lung has a cavity. In hemorrhage cases, hemorrhage can be stopped immediately by

compressing the lung with gas. Most cases should be put to rest first: if they do not show improvement compress the bad lung. He said rest treatment was necessary in the first few weeks of pneumothorax work. His experience at Loomis is that three times as many cases are living after 14 years among those who were treated with pneumothorax as those that were not. The cavity should be kept closed for two years at least.

Dr. Ralph C. Matson, Portland, Ore., spoke on "Pneumolysis." Pneumothorax was a great step in advance, but in these cases where it failed, then pneumolysis would save a great many. He advised pneumolysis in those cases in which the lung is held to the costal pleura by adhesions. These adhesions are of various kinds; strings, cord, band, fan-shaped, funnel shaped and tube. The operation consists of severing these bands. He reports a successful outcome in 122 out of 206 cases.

Dr. John Alexander, of Ann Arbor, spoke of "Multiple Intercostal Neurectomy and Phrenicectomy." His paper was largely illustrated with slides and pictures and his conclusions were, without giving any figures, that by carefully selecting cases, these operations gave good results.

Dr. Philip King Brown, San Francisco, "Thoracoplasty." He stated that in the treatment of tuberculosis, if the patient was treated at the right time, in the right place and by the right method all would be well, but if, as in many cases, he was treated at the wrong time (after the disease had advanced) in the wrong place and by the wrong methods, his treatment would continue until he was dead. Cavities should be considered important and as a serious thing and that cavities should be closed by one means or another. If they do not close of themselves, then of course, try pneumothorax or pneumolysis and if all these other methods have failed the only thing left was thoracoplasty, and thoracoplasty in well selected cases, in cases that had tried the simpler methods and failed, cases that were going to die anyway unless something radical was done, was the means of saving quite a number that would otherwise be lost.

Dr. Gerald Webb, Colorado Springs, "Surgery in Tuberculosis." There was much misunderstanding about chest surgery; that frequently patients came to him and said that they had been chasing for several years and they wanted to have an operation and be done with it, meaning they would get well immediately, but he said for the best results in pneumothorax cases, they should be kept for at least three years and that after thoracoplasty they should be kept under close observation for a long period of time. He believed that pneumolysis had led to a slight increase in the number of cases saved. Phrenicectomy was of too recent date and it was too soon to evaluate its results, but he issued this warning in regard to both phrenicectomy and thoracoplasty, that when once done it could not be undone and should not be gone into hastily. Thoracoplasty should only be done by a well trained chest surgeon. The condition of the patient, the skill of the surgeon are factors that spell success or failure. With a well trained surgeon and close cooperation between the surgeon and the chest man, these cases still need from three to five years of very careful care. Permanent cure is not greatly accelerated by these methods. The decision to submit patients to surgery must be made by a competent diagnostician.

Dr. W. E. Ogden, Toronto, "The Diagnosis of Pre-Clinical or Latent Tubercle by Caulfield's Inhibitice and the T.C.F." He stated that tuberculosis had an incubation period of from one to five years. By the study of these reactions he is able to determine several months before any symptoms develop. He said however, that interpretation of Caulfield's reaction is difficult; that immunity varies. The test is of great value in dealing with suspects and contacts. He believes that in this reaction we have a method of diagnosing pre-clinical tuberculosis two years before the first signs will show by x-ray, however, it was highly technical and can only be done by a well trained laboratory man.

Dr. C. Saul Danzer, Brooklyn, "A Diagnostic Triad in Syphilitic Aortitis." He said that syphilitic aortitis was a thing that was hard to diagnose; that very often you had syphilitic aortitis with a negative Wassermann. He gave three points on which diagnosis can be made: angina; negative carotid sinus reflex; rapid sedimentation rate. In non-syphilitic aortitis the carotid sinus reflex is absent.

AN INTERESTING CHEST LESION

(Case history presented by Drs. Holmes, Randolph and Randolph, for discussion by the Clinical Club of Phoenix, at their regular Monday noon meeting of Jan. 20, 1930.)

Case History

An American lumber broker, 59 years old, came to the office Nov. 18, 1929, complaining of moderate shortness of breath and pain in the left chest.

In March, 1929, began to feel tight in the chest and noticed a shortness of breath. There was no pain at that time and no cough or expectoration. A physician was consulted who made a diagnosis of fluid in the left pleural cavity, the diagnosis on physical examination being confirmed by x-ray. The left side was so completely clouded by fluid at that time that no lung detail could be seen but the right lung showed only slight striation densities. There

were three aspirations of fluid in March and early April, the first consisting of 65 ounces. It was clear, tea colored and no organisms were found on smear or culture. A guinea pig was injected which proved later to be free from tuberculosis. He was much relieved by these aspirations and has been up and around since, although doing very little work. His strength is fair. His usual weight has always been from 133 to 135. This dropped to about 125 during his early illness but he has regained slightly. now weighing 128. There were no further aspirations from April until about November, when about 25 ounces of fluid were removed. This fluid was slightly tinged as with old blood| An x-ray was taken on Oct. 17th, 1929, on which the following report was made:

"The negative of the chest shows gross pathology involving the left lung field with heavy pleural thickening and fluid residues at the base. At the apex there is a fibrotic change of the lung structure with peripheral induration over a rather wide area. No evidence of invasion of the right lung. The heart and medastinal shadows are slightly distorted with a degree of displacement to the right, however we would consider the pathology at the base more fibrotic than fluid."

The symptoms complained of were slight cough at times with slight expectoration usually to be accounted for by a cold, pain and tightness in the lower left chest and epigastrium, slight dyspnea, fair strength. The appetite fine, the bowels satisfactory, no night sweats, no nocturia, no palpitation.

There is no history of tuberculosis in his family. He has always enjoyed good health with the exception of frequent colds for years. He has never had a serious illness in his life.

The physical examination showed a fairly well developed and nourished man apparently in quite good health. The skin was clear. color good. Head negative. Thyroid not palpable. No glandular enlargement. Chest somewhat asymmetrical, the left side being slightly larger than the right and with limited expansion. The apex beat not felt. Right chest negative. Left chest. decreased resonance over the upper half shading off to flatness at the base with absent breath sounds and tactile fremitus over the lower half. The breath sounds over the upper third were distant bronchial. No rales before or after cough. Fluoroscopic and x-ray examination showed heart moderately displaced to the right with dense shadow over the left base. In the oblique position, some radiance of uncollapsed lung could apparently be seen between this shadow and the heart and mediastinum. There was some irregular shadow seen at the apex but imperfectly seen.

Sample of blood tinged pleural fluid was withdrawn on entrance examination and it was negative for tubercle bacilli or other bacteria. The temperature was 99.1, the pulse 120, blood pressure 160/100. Urine examinations were negative. There was no sputum for examination. He was advised to live a rather restricted life but not put to bed and advised to return if any other symptoms developed. In three weeks he returned complaining of more tightness in the lower chest and in the epigastrium. In general he felt quite good and had gained two pounds.

After consultation it was decided to remove part of the fluid and replace with air. 1400 c.c. of blood stained fluid was removed and replaced in part with 400 c.c. of air and further x-rays taken. The report showed:

"Stereoroentgenogram of this chest shows excessive amount of density along the heart border on the right side, extending into the basal area; shadows being rather irregular in type. On the left there is pneumothorax, with some fluid in the pleural space. There is an irregular density over the apex and upper lung field, where the lung is not entirely collapsed. There is a nodular thickening of the pleura over the lateral aspect. Suggests non tuberculous lesion."

He felt so well on leaving the x-ray laboratory that he did not go immediately home as directed, but walked about for an hour. On arrival home, he felt chilly and bad and was found to have a temperature of over 100. That night developed a wheeze and exceedingly persistent cough. He lay on the right side all that night. The next morning when seen, was found to be cyanotic and quite wheezy. Temp. 103. Cough extremely annoying but no expectoration. That evening he had a severe pain, aggravated by cough, in the right anterior axillary line. Bronchial breathing and rales over this area. Temperature 102. After considerable persuasion was induced to lie on the left side. Wheezing stopped almost immediately and the cough soon practically ceased. Pain in right lower helped by tight swathe. The following day a needle was inserted in the left chest and about 200 c.c. of air removed. During the removal he started to cough and bloody fluid was sucked out into the tube. It was noted that the manometric reading was slightly positive previous to withdrawal whereas it had been markedly negative after removal of the fluid and replacement with air. He ran a stormy course, with marked shortness of breath, cyanosis and high temperature for two days. The heart action became weaker, stimulation with digitalis and adrenalin proved of no avail and he died on Dec. 14th. 1929, five days after the fluid was withdrawn,

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Discussion by Dr. Orville H. Brown

The salient points in this history are: The patient was a ma'e 59 years old; in March, 1929. he developed shortness of breath and full feeling in left chest. Fluid was found in left chest and withdrawn three times in March and April—65 ounces at one time. It was clear, tea-colored with no organisms on smear and culture. Guinea pig injection was negative for tuberculosis. About November 1st 25 ounces of blood-tinged fluid were withdrawn. X-ray findings showed heavy pleural thickening on the left apex. Heart and mediastinum were crowded to the right. The temperature was 99.1, pulse 120 and blood pressure 160/100. 1400 c.c. of blood stained fluid was removed about December 10th, and replaced with 400 c.c. of air. X-ray confirmed previous findings. Patient developed wheezing and persistent coughing and fever that evening. Next morning he was wheezing and cyanotic with temperature of 103 and extremely acute cough. Severe pain developed in the right anterior axillary line, with bronchial breathing and rales in this area. The right chest was strapped. 200 c.c. of air were removed from left chest with bloody fluid. At this time it was noted that the manometric reading was positive. whereas it had been negative the day before. Shortness of breath, cyanosis and temperature increased and death ensued on the fourteenth of December.

The abnormalities in this patient which brought him to the physician were his shortness of breath and full feeling in the chest. The finding of large amounts of fluid with the dislocated heart and mediastinum explain the symptoms.

Fluid in the chest may arise from a variety of conditions. In the order of the frequency they are:

1. Pleurisy. Pleurisy is caused by (a) tubercle bacilli which may be difficult or impossible to dem-

onstrate in the fluid; guinea pig inoculation, however, will usually prove their presence. Such a fluid is ordinarily straw colored and rarely blood-tinged. (b) Pyogenic organisms ordinarily demonstrated in the smear or culture. The fluid may be clear and straw colored, but will usually contain a few pus cells. (c) Rheumatic infection in children may result in bacterial infection of the pleura, causing effusion. (d) Inflammatory processes in the abdomen may follow up the posterior wall and result in sulphenic abscesses which may cause inflammation of the diaphraghm and the organisms be transmitted directly through to the pleura. This naturally happens more often on the right side than on the left.

2. New growths. These may be primary or secondary usually malignant. They may arise from the mediastinum, the lungs or the pleura. The fluid from new growths is usually blood stained, but is otherwise negative except that occasionally the cancer cells may be demonstrated in the sediment of the fluid.

3. Lymphogranulomata of various types may produce pleural effusion, but as a rule the effusion appears late in the course of the disease.

4. Lung emboli may be so extensive as to interfere seriously with the function of the pleura and may cause accumulation of the fluid. This is more likely to be bilateral than unilateral.

5. Bright's disease produces chest effusion in large amounts and may occasionally be the earliest evidence the patient has of his illness. The urinary findings will, howeevr, be positive for Bright's disease and there will usually be extensive edema in other places. Ordinarily, too, the effusion occurs only in the late stage of the disease. The fluid will not usually exist in just one cavity.

6. Multiple serositis is responsible for chest effusion, but as the name implies, fluid will be found in various cavities of the body.

The evidence in this case would indicate strongly that a new growth existed in the left chest. The man's age is easily compatible with the existence of cancer. The growth might be primary or secondary. Had it been secondary there would probably be found some evidence of the origin of the growth. There is no record of any abdominal or general examination having been made. Had fluid existed in other cavities in anything like the amounts that existed in the left chest mention would have been made of it.

It seems safe then to conclude that this was a primary cancer of the left chest. The x-ray indicates that there is a thickening of the mediastinum of the left pleura and of the apex of the left lung. There seems to be no characteristics about the thickening of the mediastinum or apex to suggest new growth. The changes of the lung appear to be more of a fibrosis than of a new growth. The blood-tinged fluid is strong evidence of malignancy.

The course of events of the last few days of the man's life may only be guessed at. He probably developed a pleurisy on the right with an area of pneumonia. This was likely responsible for his fever and part of the pain in the right chest and for the wheezing.

The fact that the pressure in the left chest became positive, when it was negative the day before, without any great accumulation of fluid, suggests a right accidental pneumothorax. The acute pain may have come from pull upon adhesions or from metastases. The stormy course with increased dyspnea suggests that the idea of pneumothorax might be correct.

The diagnosis then would appear to be: (1) Carcinoma of the pleura; (2) extensive effusion of the left chest and artificial pneumothorax; (3) pneumonia; (4) right accidental pneumothorax; (5) crowding of the heart and mediastinum to the right previous to pneumothorax(?) on the right side.

Discussion by Dr. A. C. Kingsley

A man 59 years of age, complaining of pain in left chest. Moderate shortness of breath; no cough or expectoration; little or no temperature; fluid in the chest, recurring following aspiration—which is negative for tuberculosis; the x-ray findings; and no other organic findings, which went on to fatal termination within a comparatively short period of time. The fact that his physician advised "he live a rather restricted life; but not go to bed and advised to return if any other symptoms developed," also brings the thought that he was dealing with an incurable malady.

Differential diagnosis lies between acute serofibrinous pleurisy; aneurism of the thoracic aorta; pulmonary tuberculosis; tumor of the mediastinal glands, lung or pleura. There are other diseases which might produce effusion into the pleural cavity. However, they are too remote to consider.

Sero-fibrinous Pleurisy: At the beginning of his illness, there was no history of an acute onset. Also, had this occurred, the fluid would undoubtedly have become purulent. Consequently I am of the opinion that this was not the condition.

Aortic Aneurism: Absence of paroxysmal cough, hoarseness, marked dyspnea, tracheal tugging and of murmurs, together with negative x-ray findings, also eliminates aortic aneurism.

Pulmonary Tuberculosis: Age is beyond that at which an active tuberculosis usually develops; it was confined to one side of the chest; absence of temperature, cough or expectoration. night sweats, negative guinea pig test and the x-ray findings not those of tuberculosis, eliminates this possibility.

Tumor of the Mediastnial Glands, Lungs or Pleura: The pleural effusion becoming bloody in character, while not conclusive proof of malignancy, is enough to cause suspicion. Absence of cough and expectoration; pain and constriction; moderate dyspnea; the fluid rapidly recurring in one side of chest, following aspiration; together with x-ray findings of heavy pleural thickening wiht fibrotic change at the base; the distorted heart and mediastinal shadows, lead me to the diagnosis of malignancy within the left chest. The lung being collapsed, indicates the lesion was not within. Had the tumor found origin in the mediastinal glands, the cough and dyspnea would have been more marked.

Diagnosis: Malignancy arising in the left pleura, extending to pericardium and mediastinum.

Note:—All members present concurred in this diagnosis, although the point was brought out that actinomycosis of the lungs would give an x-ray picture very similar to this, when confined to one side.

Autopsy Report by Dr. H. P. Mills

Permission for only limited autopsy was obtained. Only left lung removed. There was consolidation at upper lobe and pneumothorax and fluid compressing lower lobe. The pleura was thickened and adherent and contained multiple dense small nodules. There was an abnormal amount of tissue structure at the lung root surrounding the primary bronchi and extending into the adjacent parenchyma. The lining of the bronchi is smooth and apparently not involved.

Sections show a new growth made up of atypical epithelium arranged in irregular gland-like formation and having the characteristic appearance of an adenocarcinoma. This extends into the submucosa of the bronchi, but not into the lumen. Sections of pleural nodules show similar cell structure.

We would consider as an adenocarcinoma, probably primary.

REPORT OF CASE OF PERNICIOUS ANEMIA

JAMES J. GORMAN, M. D.
El Paso, Texas

(Read before the El Paso County Medical Society, at their regular meeting of Feb. 10, 1930.)

Male, white, age 56, railroad conductor. Examined Aug. 24, 1929. Chief complaint: Weakness and loss of appetite.

In February, 1929, began to lose his appetite and was frequently nauseated. Only occasionally did he vomit. Vomitus ordinarily consisted of dark brown fluid with only a small amount of food residue remaining. Recently even the thought of food makes him sick. Occasional distention, mostly present after the noon and evening meals. Bowels are ordinarily regular but at intervals he is bothered by either constipation or loose stool. He has occasional occipital headache with radiation down the neck constant since August 21, and very severe; feels as though head would burst. Some relief obtained by sitting in an erect position. Vision is somewhat blurred recently. Has become very short of breath on any exertion. Is able to climb one flight of stairs but only with effort and feels exhausted on reaching the top. Becomes conscious of an increase in heart rate on exertion and palpitation is not infrequent.

No known foods disagree but seems to be more nauseated after taking large amounts of fluid. During the past three months has been very irritable. Loses his temper very easily. At times memory seems rather hazy. Since July has had dizzy spells and fainted once. At other times seems to be mentally unbalanced, gets out of bed during the middle of the night and gropes around looking for his clothes and has a feeling that he does not know where he is. Sleeps poorly and has frequent nightmares. Since August 1, has had occasional tingling in the tips of the fingers.

During this attack and in previous attacks has noted a pale yellow color to the skin and sclera. Weakness has progressed rather rapidly since July. Lost 12 pounds since February 1929. Has been unable to work for six weeks account of weakness.

Has a recurrence of symptoms lasting over a course of three to four months for about four years. Present attack is similar to previous attack but is more severe, of longer duration and additional symptoms have appeared.

P. H. Essentially negative except history of having received medicine in the vein in 1900 for what was said to be probable lues.

Phys. Exam. Patient is well developed and nourished, five feet and ten inches high, weighing 156 pounds. Subcutaneous fat flabby. Skin has pale yellow tinge. Pupils react to light and accommodation; sclerae have yellow tinge. Four teeth in poor condition; others in need of attention; gums pale; tongue smooth. Lungs show slight tenderness over the right quadrant and just below right median center; liver dullness apparently diminished. Reflexes hyperactive. Romberg negative.

Temperature 99; pulse 88; B. P. 128/76. Blood Wassermann negative. Stool examination showed undigested food present; otherwise no abnormalities. Gastric analysis showed no free hydrochloric acid at thirty minutes, forty-five minutes or one hour; combined acids, 10 at thirty minutes, 12 at forty-five minutes and 13 at one hour; total acidity same as combined. About 100 c.c. contents withdrawn which appears as a homogeneous jelly-like mixture. Bread taken as a test meal showed no apparent digestion. Gall bladder drainage showed no abnormalities. Urine examination negative. Blood: hemoglobin 60; red blood cells 2,420,00; white cells 6,500, polynuclears 68, small lymphocytes 29, large mononuclears 1, eosinophiles 1. Color Index plus 1. Red cells showed marked anisocytosis and poikilocytosis with macrocytes, microcytes and pear-shaped cells present. No achromia.

Diagnosis:- Pernicious Anemia.

Treatment consisted of a diet based on about 3000 calories daily, containing two pounds of fresh liver, fresh fruits, meat, five and ten per cent vegetables. Potatoes, cereals, milk and similar foods were limited, and fats and very sweet foods were reduced to a minimum. A five meal diet was at first prescribed with exact amounts ordered. In addition, dilute hydrochloric acid in a pepsin mixture was given during the three main meals. Teeth were given attention.

On Sept. 26 patient felt much better. Color of lips and gums definitely improved. On this date, modified Blaud's pills were given in addition to previous medication.

Blood examination on Oct. 8 showed hemoglobin 80; red cells 4,400,000; white cells 7,300, polynuclears 70, small lymphocytes 23, large lymphocytes 4, eosinophiles 3; color index minus 1; red cells showed very slight irregularity in size and shape.

Returned to work on Oct. 14. Felt very well but tired somewhat easily. Has gained five pounds in weight. On Oct. 29 color was no longer yellow and numbness was not present.

Blood examination Dec. 13 showed hemoglobin 90, red cells 4,700,000, cells normal in size and shape.

Patient has continued on diet as prescribed except that amount of food is now taken approximate except for liver which is still weighed. Liver extract was tried but patient prefers fresh liver. He has worked steadily and feels fine and does not tire except on excessive work. Symptoms have entirely disappeared.

A TEXT BOOK OF SURGERY. By W. Wayne Babcock, M.D., F.A.C.S., Professor of Surgery and of Clinical Surgery in the Temple University, Philadelphia; Surgeon to the Samaritan Hospital and to the American Hospital for Diseases of the stomach. Octavo of 1367 pages with 1050 illustrations, 9 of them in colors. Philadelphia and London: W. B. Saunders Company, 1928. Cloth, $10.00 net.

The author has covered the entire field of surgery in the one volume of 1367 pages. The book is a shade over two inches thick and is easily handled. The publishers have used an excellent grade of paper. The numerous cuts are introduced directly in the text so they add no excess bulk to the volume.

The author has a terse understandable style of presenting much in little space. He presents his subject as a precise and exact science. In his preface he says: "The student or physician who reasons 'Why learn today what tomorrow may prove wrong? Why strive for exactness when the most learned are often in error?' not only loses his usefulness in a progressive profession, but lays down the torch of progress bequeathed to him. I have, therefore, written in a dogmatic vein what practice and study have made me believe is true today."

This is a book of such practical value that every general practitioner and every surgeon will wish to have it on his desk. O. H. B.

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NEW MEXICO STATE MEDICAL SOCIETY

The forty-eighth annual meeting of the New Mexico Medical Society will be held on June 4, 5 and 6, at Raton. Program will be published in our May issue.

Raton is one of the many beauty spots of New Mexico and will, no doubt, draw a very excellent attendance. From year to year we are impressed with the number and variety of beautiful settings for this New Mexico meeting. In Arizona the cycle is confined to five centers, but New Mexico seems to be able to find a new place every year, and each one appears a little more attractive than the previous location.

DR. JAMES ANDREW KETCHERSIDE

In the death of Dr. James A. Ketcherside, of Yuma, on February 18, there passed the second member of a family of practitioners well known in Arizona and the southwest, a father and two sons.

Dr. E. B. Ketcherside, the father, also practiced at Yuma for many years, and those older members of the Association who enjoyed the privilege of his acquaintance will always remember him as a typical and lovable representative of the old school practitioner.

Dr. James A. Ketcherisde was born in 1874, being fifty-six years old at the time of his death. He was a graduate of the University of Tennessee Medical College, at Memphis, in 1893, and practiced in Arizona practically all of his professional career. He was at one time superintendent of the State Hospital in Phoenix. During recent years he was a sufferer from angina pectoris which prevented his engaging in very active practice; this affliction eventually caused his death.

The surviving brother, Dr. Hilary D. Ketcherside, is practicing in Phoenix.

BEWARE OF SUPPOSED NARCOTIC ADDICTS.

There seems to be a determined effort on the part of narcotic inspectors and their agents to "frame" any susceptible member of the medical profession who can be reached. The lengths to which these gentry are going to "get something" on the doctors is astounding. For example, a reputable physician of Phoenix was called on the phone by some man who stated that he was speaking for the United States attorney's office; that a man with far advanced tuberculosis and the morphine habit wished to go from Phoenix to some point in Texas; that this federal officer desired this doctor to give the addict a prescription for morphine. Fortunately, this particular doctor was conscientious enough to insist on satisfying himself regarding the supposed patient's physical condition, and found that he had no manifest tuberculosis. He, therefore, refused the prescription. Needless to say, had he given the prescription, he would have received one of the characteristic communications from Denver, to the effect that he had violated the Harrison Narcotic Act, and suggesting that he offer a cash compromise. There are addicts travelling over Arizona who can simulate kidney colic, with collapse, cold perspiration, muscular rigidity, and even bloody urine when necessary; on at least two occasions typical pulmonary hemorrhage has been simulated. The only safe procedure, under the present conditions, is to PRESCRIBE NO NARCOTIC AT ALL for any casual patient, either in your office or on call. Break this rule one time and you are inviting trouble. Dr. Whitmore was framed by narcotic inspectors in just some such fashion as that attempted on the Phoenix physician. Dr. Whitmore was so honest that he never suspected such contemptible duplicity would be

possible, until too late. Any physician in Arizona can suffer the same fate as Dr. Whitmore, unless he is scrupulously careful to prescribe no narcotic for any one except his own patients being treated continuously by him for a known ailment. Even then he is not entirely safe.

CANCER RESEARCH AND TREATMENT

Medical men in the southwest are much interested in the Coffey-Humber "treatment" for cancer, as the general medical profession speak of it, although Drs. Coffey and Humber have been careful to insist that the whole matter is in the experimental and research stage. Unfortunately, the confidence of thoughtful members of the profession was shaken by the ill-advised newspaper publicity for which friends of the doctors mentioned was responsible, and which appeared in the papers without the knowledge and consent of Dr. Coffey and his immediate associates.

Little has been announced through the legitimate channels of medical research, and so far as can be ascertained by conversation, the discovery that the cortex of the adrenal gland would influence the growth of malignant tumors was accidental. An accidental discovery of such a nautre would hardly seem to be sufficient to lead to its application to clinical practice, until the reasons for its effects had been worked out. This may have been done, but if so, it has not been announced to members of the profession who are being permitted, if not invited, to send patients for experimental treatment to clinics in San Francisco and Los Angeles. Something more definite and positive than clinical changes in tumors, even up to their complete disappearance, must be furnished before the critical medical profession will accept any biological "treatment" of cancer as established. The method of approach to the problem followed by the conscientious research worker should be as different as possible from that adopted by the charlatan. The conception of an "idea,' its application to clinical conditions, and the pointing to clinical results as scientific proof, represent the path of the twilight zone worker, Koch, of Detroit, can cite clinical cures by the dozen. The friends of Drs. Coffey and Humber know so well that they are working conscientiously, dealing fairly with patients, the medical profession and medical science, that we "view with alarm," as the politicians would say, premature announcements and newspaper publicity.

CANCER EDUCATION NEEDED

That even the educated layman can hardly distinguish between the legitimate medical advisor and the cancer quack is borne out in the daliy experience of every physician. A case in point. An otherwise intelligent woman in Phoenix developed a lump in the breast. A friend of hers, just as intelligent in all other lines except discriminating about treatment of diseases, had had a lump in the breast removed several years ago by a notorious cancer quack in Los Angeles, whose office is on East Vernon Avenue. This lady with the recent lump, after consulting three competent medical advisors, two of them friends of many years, all of whom advised the surgical removal of this lump and examination to determine whether or not it was cancer, discarded all this melical advice, and placed her fate in the hands of this quack who was entirely unknown to her up to this time. He made a cross incision through the lump and plastered caustic paste into the wounds. If there is anything in pathology at all, and this lump is carcinoma, he could not have done anything more certain to disseminate the growth. This quack, like all quacks, founds his success on the law of probabilities in human disease. Sixty per cent of lumps of this type are not malignant, and these will get well, after much suffering and with much scarring. All of these will be living advertisements of cancer "cures." The forty per cent who do not get well will soon be dead and their voices silent. This diatribe is directed at no one in particular, but illustrates one of the many difficulties in reducing the mortality from cancer. If this lump is not cancer, this patient will survive and be a perpetual "booster" for this quack. If it is cancer, she will die, because it has been disseminated, and the proof of malignancy will do her little good. In either event harm has been done to the advancement of medical science, and that perhaps is the real reason for our irritation over this incident.

ARIZONA STATE MEDICAL EXAMINING BOARD LICENSEES.

The regular quarterly meeting of the Board of Medical Examiners was held in Phoenix on April 1 and 2, with entire membership of the Board present. The following physicians were licensed to practice medicine and surgery in the state:—

DR. MARTIN C. FLOHR, Phoenix, Ariz., graduated from George Washington University, 1929. Dr. Flohr is the resident physician at St. Joseph's Hospital in Phoenix. Licensed by examination.

DR. NATHAN D. HIGHTOWER, Phoenix, Ariz., graduated from Howard University School of Medi-

cine, 1921; formerly located in Los Angeles. Licensed by examination.

DR. WILLIAM B. THOMPSON, Tucson, Ariz., graduated from Queen's University Faculty of Medicine, 1929, former residence Kingston, Ont. Licensed by examination.

DR. WM. JEWELL SMITH, Morenci, Ariz., graduated from Northwestern Univ., 1929; former residence Gainesville, Tex. Licensed by examination.

DR. ARCHIBALD SINSON, Hillside, Ariz., graduate of Columbia Univ., 1924; former residnece Elizabeth, N. J. Licensed by reciprocity with New Jersey.

DR. FRANK W. CORNWELL, Hot Springs, Ariz., graduate of New York Homeopathic Medical College, 1900; former residence Plainfield, N. J. Licensed by reciprocity with New York.

DR. BASIL G. CARSON, Grand Canyon, Ariz., graduate of Indiana University School of Medicine, 1924; former residence Englewood, Colo. Licensed by reciprocity with Indiana.

DR. VERNON L. MAHONEY, Tucson, Ariz., graduate of College of Physicians and Surgeons, Baltimore, 1915. Licensed by reciprocity with West Virginia.

DR. CLARENCE J. LATTA, Sterling, Colo., graduate of Denver & Gross Medical College, 1902; former residence Portland, Ore. Licensed by reciprocity with Oregon.

DR. PAUL M. RYERSON, Chicago, Ill., graduate of Rush Medical College, 1927. Licensed by reciprocity with National Board of Medical Examiners.

DR. DAVID E. NELSON, Brainerd, Minn., graduate of Chicago College of Medicine and Surgery, 1909. Licensed by reciprocity with Illinois.

DR. ROBARD R. WALTON, Lynwood, Calif., graduate of George Washington University, 1916. Licensed by reciprocity with Washington.

PERSONALS AND NEWS

DR. VERNON KENNEDY, of Phoenix, has returned from a sojourn in the Mayo Clinic, where he went for advice regarding duodenal ulcer. He was advised to continue on dietetic and hygienic regime.

DR. and MRS. HARLAN P. MILLS, of Phoenix, will sail from New York on May 14th, in the group composing the European Assembly of the Interstate Postgraduate Association of North America. The Assembly this year will visit Hamburg, Prague, Munich, Oberammergau, Vienna, Venice, Rome, Naples, Florence, Milan, Lucerne, Zurich, Berne and Paris. Information comes indirectly that DR. and MRS. R. D. KENNEDY of Globe will be included in this same Assembly group, this year.

DR. VICTOR RANDOLPH, of Phoenix, visited the California Tuberculosis Sanatorium Association, at Merced, early in April, where he presented a paper.

Beginning this year the American Association for the Study of Goiter will award a cash prize of $300 annually for the best original thesis dealing with some phase of the goiter problem. These should be submitted by June 1, to Doctor Walter M. Simpson, Chairman of the Essay Committee, Miami Valley Hospital, Dayton, Ohio. The award will be given immediately following the coming meeting of the Association which is to be held in Seattle, Washington, July 10-12, 1930.

EL PASO COUNTY MEDICAL SOCIETY

March 10, 1930

Meeting called to order at 8 p. m., by the president, Dr. Paul Gallagher. There were 54 members and one visitor present.

Reading of the minutes was dispensed with by order of the president.

The first paper of the evening, entitled "Paget's Disease of the Nipple," was read by DR. W. W. WAITE. He stated that it was a rare form of carcinoma and that very little exact information about it is available in the literature. Usually attacks the nipple or adjacent region, but may occur on the skin of any portion of the body. Next to nipple the penis is most frequently involved. It starts as an itching eczematous condition and spreads very slowly, years elapsing at times before it gets large enough to attract notice. There is some induration of the skin and a definite tumor may develop. This tumor may be connected with the primary growth or may be located in some remote part of the body, behaving in this way like a sarcoma. Usually develops after middle life. The characteristic cell is large rather pale staining, with large visiculated nucleu. Its origin is in dispute Until one has a chance to study early cases, the true nature of the condition will probably never be unravelled. He then reported three cases seen in the past several years. The primary growths resembeld typical epithelioma of the prickle-cell type, but the metastases looked more like lymphosarcoma. He believes the condition to be very slow developing skin cancer.

Dr. Leslie M. Smith discussed the paper and stated that in 75 per cent of these cases there is an underlying adenocarcinoma and should all be removed. He stated that he did not believe that there was such a thing as extra-mammary Paget's.

Dr. Waite, in closing the discussion, said that he could not agree with Dr. Smith in either statement, as one of the cases presented was not adenocarcinoma, but admitted that there might be different types. He said that Hazen was the authority in speaking of extra-mammary cases.

The second paper was a report by DR. T. J. McCAMANT on the recent smallpox epidemic. As this paper was not turned in to the secretary, no abstract of it could be made. It was discussed by Drs. Waite and Outlaw.

The third paper was a case of Prostatic Calculi, by DR. A. W. MULTHAUF. M. G., age 61, cattelman. Complaint: Suprapublic discomfort. Draining perineal sinus. Pain in back.

Past history: Had gonorrhea at the age of 18, of about seven years duration. Had operation for repair of right hernia at age of 40. Had complications resulting in the secondary opening of the incision. Had to be cathetrized for a period of ten days. Catheterization was very difficult and could only be accomplished with metal instrument. Following discharge from hospital, patient developed bladder irritation, chronic in nature, which was somewhat relieved by an advertised medicine which he has been taking a greater portion of the time up till admission.

Present illness: About two months ago patient developed chills and fever which lasted for about 72 hours. This was accompanied by perineal discomfort. Three days later, patient became aware of a swelling in perineum to which he applied hot compresses and which finally opened, discharging pus and urine. Urination for the past 5 to 6 years has been very difficult. Stream very small and frequency very marked. Pain in back has been present for many years.

Examination: Temperature, pulse normal. Blood pressure 160/110. Tenderness on palpation over both kidneys. No pain along course of ureters. Suprapubic palpation produces marked discomfort. Penis slight mucopurulent discharge; smear shows no intracellular diplococci. Urethra indurated in

several areas on palpation. Scrotal contents negative. Examination of the perineum reveals a sinus opening to the left. Pus and urine are draining from it. Attempt at voiding with finger over opening results in a few drops of urine appearing at external urinary meatus, demonstrating patency of urethra. Rectal examination shows a prostrate broader than normal, indurated, bound down along its outer border by adhesions. The surface markings cannot be made out. There is an intervesicular induration as far as the finger can reach. The gland has a crepitant feel on palpation, suggesting the presence of multiple prostatic calculi. The urethra could not be explored with the bougie a boule on account of multiple strictures, smaller than a 10F. Filiforms were passed after a prolonged attempt. Three of them were finally passed to bladder and held in place with adhesive. Flat x-ray was taken of pelvis; sinus injected with bismuth; plate verified the findings on rectal examination and also disclosed the presence of a large vesical calculus. On account of the long standing urinary obstruction, a kidney deficiency was suspected but phthalein determination was difficult and by no means accurate. It was carried out and showed the presence of a trace of dye after 15 minutes. A suprapublic cystotomy was done under local anesthesia and a bladder calculus was removed about the size of a hen's eggs. The internal urinary meatus was stretched and a V-shaped piece was excised from the vesical neck permitting the easy introduction of the finger into the posterior urethra where several small calculi, that had ulcerated through the mucous membrane, were removed. Patient was put to bed on forced fluids. Discharged from hospital with Pezzer catheter in place at end of ten days. Urethral strictures were now dilated and up to date a number 12F can be passed. Patient is still draining a small amount from suprapubic incision. Perineal sinus is healed and with finger over suprapubic opening, patient is able to void per urethram with good force and fair stream.

Diagnosis: 1. Multiple prostatic calculi. Vesical calculus. 2. Multiple urethral strictures. 3. Perineal sinus following spontaneous ruptures. 3. Peperiurethral abscess.

Prostatic calculi are frequently encountered in prostatic surgery. They may be either single or multiple. It is my opinion that the majority of cases are seen in chronically infected glands. There is nothing pathognomonic in the symptoms presented. The diagnosis is sometimes possible by crepitation noted on palpation of the gland, but is most frequently noted on the x-ray examination.

The case was discussed quite thoroughly by Dr. K. D. Lynch, who thought that this was evidently a case of true prostatic calculus. In his experience many of these cases have not been assocated with chronically infected glands. While Dr. Young advocates the perineal route he himself prefers the suprapubic.

After disposing with the scientific part of the program, a general discussion was precipitated by Dr. Waite about the coming Southwestern meeting which is to be heled here this year. This discussion was participated in by Drs. Cathcart, Gallagher, W. L. Brown, Prentiss, Miller and Waite, and bore upon the following points: The time for holding the meeting, the character of the meeting, whether or not a registration fee should be askd and the appointment of the various committees needed. It was the concensus of opinion that the executive committee of the Medical and Surgical Association was the proper body to decide what type of meeting was to be held and on motion by Dr. F. P. Miller, Dr. Waite, as member of that committee was instructed to confer with the rest of the members and to report back at our next meeting their wishes in the matter. After a good deal of discussion, the motion was put to a vote and carried. As to whether a registration fee should or should not be charged, it was decided that this could be better determined after finding out the character of the meeting. On motion made by Dr. Swope, November 6th, 7th and 8th, were the dates set for holding the meeting, provided it was found after consulting the chamber of commerce that these dates did not conflict with any other meeting. It was brought out that the president of the County Medical Society where the meeting was to be held was the one who appointed the different committees. The president then appointed Dr. W. L. Brown, as chairman of the program committee. The personnel of the other committees was to be made known later.

Under miscellaneous business, Dr. Egbert made a plea for contributions to support the six months radio program adopted by the society last year. He stated that the committee had its hands full in arranging the programs without having to go out and solicit funds. But few of the members had paid the $6.00 requested. He then reported how the programs were carried out. He said he did not know how much benefit was accruing from this work to the public and to the society, but he did know that it was creating quite a commotion among the cultists. Dr. McCamant, another member of the radio committee, said that chiropractors and christion scientists had standing offer with both radio broadcasting stations here to go on the air, but that these stations would not consider these offers as long as we availed ourselves of their services. On motion made by Dr. McCamant, this report of the Radio Committee was accepted by the society.

Dr. McCamant then introduced a resolution endorsing the candidacy for Congress of Honorable Robert Ewing Thomason, our present mayor. On motion made by Dr. McCamant, this resolution was adopted unanimously.

An application by Miss Mary Hammond, of Fort Worth, Texas, for position as physician's office assistant was read.

The president then stated that Col. Moncrief requested that the society hold one of its meetings in April, at the Beaumont Hospital. As there was no objection to this, he said he would announce the date later.

The applications for membership of Dr. D. G. Arnold and Dr. J. Mott Rawlings, were then read. On motion of Dr. J. A. Rawlings, these applications were unanimously accepted.

Dr. Turnbull ,a visitor from Pittsburgh, Pa., was then introduced to the society.

There being no further business the meeting was adjourned at 9:30 p. m.

S. H. Newman, M. D.
Secretary-Treasurer.

EL PASO COUNTY MEDICAL SOCIETY

Special Meeting March 12, 1930.

The purpose of the meeting was to hear DR. H. E. ROBERTSON, Professor of Pathology of the Mayo Foundation and head of the Department of Morbid Anatomy of the Mayo Clinic, conduct a clinical pathological conference.

The meeting was called to order by the President at 8 p. m., there being 42 members and two visitors present.

After being introduced to the society, Dr. Robertson stated that he was not here to tell any of us our duty in regard to postmortem examinations, but to discuss with us purely fundamental problems in

these examinations this discussion to come under four headings:

(1) The relation of the postmortem examination to the doctor himself. We do not have more of them because the doctor himself does not want them. This is due, not to the doctor being afraid of facing his mistakes, but because they know the conditions that often surround such examinations and those conditions are not such that he wants to contemplate. They are not the pathologist's fault, however, but are due to his inadequate facilities. Many clinicians are eager to learn the results of autopsy findings, but are themselves unwilling to attend. We do not like to ask of our friends that they submit their loved ones to these conditions and so a large proportion of these autopsies are conducted on the poorer classes. There is no question but what the greatest benefit is derived from autopsies on the more intelligent class for these are the cases that have the better clinical data. More of this class would be available if we would better the conditions surrounding postmostem examinations. If the room was as clean and neat and orderly as the operating room, and the doctors came in on tiptoe, removing their hats and refraining from smoking, and walked out quietly again, and no blood was spilled, etc. (just as you would expect in a surgical operation), things would then take on a different aspect and the gruesomeness of the thing would be done away with and be raised to a higher plane. Then we would be able to ask for autopsies without any twinge of conscience.

(2) The relation of postmortems to the undertaker. The undertaker instinctively avoids having an autopsy for, among them, it has been handed down from generation to generation, to look out for these doctors and their autopsies. But this is an unfounded fear if the autopsy is done as it should be and if the undertaker has had a little training. In Minneapolis, which has the highest percentage of autopsies in the country, a school has been established for undertakers wherein they are taught to take care of the body after it has been posted. As a consequence, the doctors receive the whole-hearted cooperation of these undertakers. They never go beyond a specified technic without their consent.

(3) Relation of postmortem examiations to relatives of the deceased. We must remember that relatives granting permission for these examinations are doing a self-sacrificing act by overcoming their natural prejudice; they are doing it for the good of humanity. We owe something to these relatives and so are in duty bound to go and tell them of anything found that might have been of importance and have some bearing on themselves. They readily absorb the facts worth while to them and to their children.

(4) Relation of postmortem examinations to our colleagues. In assuring the relatives that the postmortem is done for the furtherance of humanity, we have not fulfilled this promise until we have made known to our colleagues the things we have found during the examination that would be of benefit to them in their practice. This is probably best done at staff conferences.

Dr. Robertson then proceeded to show by example how a clinical-pathological conference might be held. He demonstrated two cases. The entire history, clinical data, gross specimens and microscopic slides were projected on the screen by means of a lantern. One was a case of carcinoma of the cervix, complicated with acute yellow atrophy of the liver, due to atophan poisoning, and the other was a case of Hodgkin's disease with amyloid degeneration in the kidneys and spleen.

In discussing the lecture Dr. Waite wanted Dr. Robertson to know that the doctors here did not share the abhorrence for postmortem examinations that Dr. Robertson seemed to think was general throughout the country. This was probably due to the absence here of those gruesome scenes. To bear out his statement he called attention to the fact "that of all the doctors who have died here in recent years, probably more than half of them had been posted." He thought we had gotten a long step in advance of the conditions described by Dr. Robertson and ventured to think that if all our postmortems were tabulated, we would have as good or even better an average than Minneapolis.

Dr. Turner stated that he was glad that Dr. Robertson saw fit to come here and give us this talk. He did not think that the postmortems as conducted here were particularly gruesome. But he did think that the attendance at them could be improved and that more benefit could be derived from them if the clinical side was presented at the time.

Dr. Gallagher wanted to know how Dr. Robertson had succeeded in having the undertakers consent to autopsies before embalming. He said that one reason against it out here was the custom of burying our dead between 24 to 48 hours after death.

Dr. W. L. Brown expressed himself as mighty well pleased with the paper and as something entirely different to what we have been accustomed. He thought it would serve as a wonderful stimulus for more postmortems.

Dr. Rigney thought that the Medical Society, by going about it in the right way, could educate the public to the point where there would be no opposition when a postmortem examination was requested. At the present time he thinks they are jusitfied in opposing it, due chiefly to the exposed manner in which corpses are kept in the morgues. He thought it quite important to bring back to your colleagues information gained from these examinations, but was not so sure as to the wisdom of imparting this information to the relatives of the deceased, as it might at times end up in lawsuits.

Dr. Werley said that in the past six years there had probably been a thousand or more autopsies performed here. He said that the amount of benefit derived from such an examination depended directly on the amount of work you had put in on the case. Also, on this usually depended whether or not you obtained permission for the examination. If the family saw that you were vitally interested in the case, then when something went wrong and the patient died despite your efforts, their curiosity would be aroused as to what had happened and they would often want an autopsy themselves. He wanted Dr. Robertson to know that we had a clinical-pathological society here and that it had a projectoscope for microscopic slides.

Col. Moncrief stated how he had enjoyed the evening and told how interested they were in postmortems at William Beaumont Hospital. There they do not have to obtain permission from men in the service, but do for war veteran patients. This, however, is not usually difficult. He would like to know, though, how they had succeeded in obtaining the whole-hearted cooperation of the undertakers in Minneapolis.

Major Hall was in thorough accord with Dr. Robertson's paper.

Dr. Robertson, in closing, said that it was much more satisfactory and easier, of course, to conduct a postmortem examination on a body before it was embalmed, but one on an embalmed body was better that no postmortem at all. The embalmers have been taught how to arrange the body and embalm

LILLY'S Ephedrine Products make available to you a means of providing quick relief and comfort to patients suffering from catarrhal congestions of the nasopharynx and sinusitis.

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it. They have found that they can make a much more perfect embalming job after such an examination than before, chiefly on account of the cavities being emptied. The ancient Egyptians had found this out and practiced it. He said that during the examination, the different vessels were picked up and tagged and in that way the embalmers knew just where to inject.

There being no further business, the meeting adjourned at 9:15 p. m.

S. H. NEWMAN, M. D.,
Secretary-Treasurer.

EL PASO COUNTY MEDICAL SOCIETY

Meeting, March 24, 1930.

Meeting called to order by the president, Dr. Paul Gallagher, at 8 p. m. There were 40 members and two visitors present.

Reading of the minutes of the previous meeting was dispensed with by order of the president.

Clinical cases were then presented, the first one by **Dr. A. P. Black.** This was a case of achrodynia in a six months' old baby. Normal birth, weighing 8 lbs. First tooth erupted at five months and the second at 5½ months. Was breast fed up to 2½ months of age. Then he became very fretful and mother concluded her milk was not agreeing with him, so she took him off the breast. From then on he was put on various formulas but lost in weight and became more irritable. When 3½ months old, developed a mild injection and on the fourth day of the illness erupted with a morbillifrom rash all over body. But it evidently was not measles. After the appearance of this rash the mother noticed that his hands and feet were intensely red and moist and about this time he started chewing his fingers and twisting and squirming. Kept losing in weight. He was seen by Dr. Black about a week ago. The baby was then a picture of misery and presented an extensive miliary eruption over the body, less on the limbs. There was an intense redness of the palmar and plantar surfaces of the hands and feet, extending about to the wrists and ankles. Had a blepharitis, photophobia, and mild conjunctivitis. The heart showed a tachycardia. The leucocytes were 16,700, with 62 per cent monos, mostly small.

Dr. J. A. Rawlings stated that he had never seen a case before to his knowledge. Up to the last five years there was nothing concerning it in pediatric literature. Thier, of Switzerland, spoke of it as a negative neurosis. After once seeing and studying a case it should be easily recognized in the future.

Dr. J. Mott Rawlings stated that he had seen two cases, both of which had gone on to autopsy, one of which he had performed himself. He said that the pathology was rather disappointing. Save for the marked discoloration of the finger tips and plantar and palmar surface nothing else was found except in one case that showed a marked aplasia of the lymphatic system.

The second case was one of Spontaneous Intracranial Hemorrhage, presented by **Dr. Branch Craige.**

This was a 16 months old baby, whose delivery at birth had been an instrumental one but with no complications. Had had whooping cough when 8 months old, but with no untoward after effects. On the 25th of last February, he had complained in the mornings as usual. He came in to take his bath and while in it he suddenly turned deathly pale and started crying. In a few minutes he lapsed into a semicoma and began to groan. Then he had a convulsion. His temperature quickly rose to 103 or 104. After the convulsion he remained in a position of opisthotonos. The semicoma continued. His mother was able to get him to take plenty of fluids, however. He was brought to El Paso on the fifth day of his illness still in this condition. His right knee was flexed and his right hand in a constant state of motion. Left arm and leg showed partial paralysis. The eye grounds were negative, pupils equal and ears normal. The right cheek was retracted. The reflexes were greatly exaggerated on both sides and he had ankle clonus. The spinal fluid showed much free blood with disintegrating red blood cells. Since then he has improved wonderfully. The opisthotonos has disappeared and he is gradually regaining the use of his limbs. Today he has been up on his feet several times. His mentality is perfectly normal. Dr. Craige thinks that he is going to make a complete recovery. He said that the prognosis in these cases depended on the authority you read and on the experience you have had. Butler states that one-third of them will show idiocy, one-third epilepsy and the other one-third some other form of mental derangement, and that all of them will have left some paralysis. Other authorities state that they have never seen a case having untoward results.

Dr. John A. Hardy stated that he had seen the case previously. The parents had wanted an operatio, but that he saw no prospect of any good resulting from operation. He can see no difference in spontaneous hemorrhage and traumatic hemorrhage. He has never seen a case of subdural or subcortical hemorrhage that did not die soon or get well without sequelae. Spinal tap is of great aid, especially to diagnosis and prognosis. Only two conditions in which decompression is indicated, the first being high pressure of the spinal fluid on the initial tap and high or higher pressure on subsequent taps; the second indication is high pressure with little fluid and no blood, (indicating an extradural hemorrhage).

Dr. J. Mott Rawlings cited a case of his own. A four months old baby that fell out of bed and died four hours later. Autopsy showed a rupture of the right middlem eningeal artery with thrombus formation at the point of rupture and with 200 to 300 c.c. of free blood.

Dr. Willis W. Waite stated that he had never performed an autopsy on a case of spontaneous hemorrhage in a child, but had done several on adults. Three of these were due to aneurism. None of them were located at the branching of the vessels. He did not know what was the cause of the aneurism except in one case which showed a four plus Wassermann of the spinal fluid.

Dr. J. A. Rawlings said that from the description of this case,—convulsions followed by high fever, coma, hemiplegia and opisthotonos—he could not exactly agree with the diagnosis. It looked to him more like a picture of acute encephalitis, which is a much more common occurrence than that of spontaneous hemorrhage. He had had a case recently similar to this one, but it was a case of encephalitis. He thought more thorough study of the spinal fluid should have been made before arriving at a diagnosis of spontaneous intracranial hemorrhage, a case of which he had never seen.

Dr. Black thought it would be impossible to draw conclusions from the cell count of spinal fluid containing free blood. Reaction from hemorrhage itself might also cause an increased cell count.

Dr. Craige thought that in case of encephalitis you would hardly expect hemiplegia and blood in the spinal fluid immediately following the onset of the illness.

The next clinical case was that of scurvy in a 15 months old baby, presented by **Dr. S. H. Newman.**

HAY FEVER

An Advertising Statement

HAY FEVER, as it occurs throughout the United States, is actually *perennial* rather than *seasonal*, in character.

Because in the Southwest—Bermuda grass, for instance, continues to flower until December when the mountain cedar, of many victims, starts to shed its pollen in Northern Texas and so continues into February. At that time, elsewhere in the South, the oak, birch, pecan, hickory and other trees begin to contribute their respective quotas of atmospheric pollen.

But, nevertheless, hay fever in the Northern States at least, is in fact seasonal in character and of three types, viz.:

TREE HAY FEVER—*March, April and May*
GRASS HAY FEVER—*May, June and July*
WEED HAY FEVER — *August to Frost*

And this last, the late summer type, is usually the most serious and difficult to treat as partly due to the greater diversity of late summer pollens as regionally dispersed.

With the above before us, as to the several types of regional and seasonal hay fever, it is important to emphasize that Arlco-Pollen Extracts *for diagnosis and treatment* cover adequately and accurately all sections and all seasons—North, East, South and West.

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The mother's chief complaint of the infant was extreme irritability and paralysis of the right leg; no fever and no digestive disturbance. No paralysis was found, but marked sensitiveness of the lower limbs, especially the right. The gums over the four unerupted canine teeth were found quite swollen and bluish looking and very sensitive. The baby's diet showed a deficiency of vitamin C-containing foods. An x-ray of the right leg by Dr. Mason, on the 17th day, failed to show any changes in the shaft or epiphises, although a beginning painful nodule was beginning to make its appearance just above the internal malleolus. The baby was rapidly improving on an antiscorbutic diet.

Dr. Mengel (dentist), who had seen and studied the case and was the first to suggest the diagnosis, stated that nearly always the early symptoms of scurvy were to be found in the mouth. The gum over erupting teeth would turn pink, rose-colored and finally bluish and swelling would occur. This was due to subperiosteal hemorrhage. He said that Dr. Hirschfield had brought out the point that in older patients you would find that the tip of the gingiva, between the teeth, would not present the bluish black appearance shown by the rest of the gum. Vincent's angina has, at times, to be differentiated from scurvy.

Dr. Black thought that in three weeks time the x-ray should show changes in the shafts and epiphes-es.

Dr. J. A. Rawlings said that while formerly scurvy was a common disease it was rarely seen now among the more intelligent classes. The recovery that these cases made on a proper diet was remarkable. It is often mistaken for rheumatism.

Dr. Werley told of his experience while a medical student with his own child who became afflicted with scurvy.

Dr. Cathcart told of an orthopedic surgeon here years ago who was on the point of encasing both ankles of a child in plaster of paris casts, account of swelling and pain, when his attention was called to the fact that the child had scurvy. Proper diet relieved the condition entirely after a few days.

Dr. Craige stated that of the two cases in his experience, both of them had been fed on malted milk.

Dr. S. H. Newman then presented a case of tularemia of the ulcero-glandular type. This was the case of a man who, while hunting and skinning jack-rabbits and cotton-tails up in New Mexico, stuck a thorn in his left middle finger. A painful, punched out ulcer soon developed there, followed in a few days by a painful adenitis in left axilla. Later a few fleeting painful nodules developed on forearm. A few days after the development of the ulcer, he started experiencing chilly sensations and aching all over and headache. All of this had continued up to the present and the patient feels weak, although he is up and about. This is the 15th day of his illness and there is no sign yet of improvement, either in his general condition or in the appearance of the ulcer and the adenitis. An agglutination test on blood taken on the 11th day of the illness was positive only in a dilution of 1 to 20. Dr. Newman thought that this was an extremely mild case, but that the agglutination titre would be much higher in a couple of weeks more.

Dr. Waite said that four cases of tularemia had been diagnosed here by means of the agglutination test.

Dr. Leslie M. Smith then presented a case of hyperkeratosis in a child four years old. This has been present since birth. The skin on the palms and soles was greatly thickened. The mother had the same condition but to a lesser degree. The treatment in these cases simply aims at amelioration, such as good-sized doses of x-ray or salicylic acid ointments to soften up the skin. There is no permanent cure.

Dr. S. D. Swope then presented the sixth and last clinical case. This was a man 29 years old, who had been suffering from headache for the past five years. Never a day passed but what he had a headache during some part of it. Suffers from an inferiority complex. Has been a drifter since age of 14, but has no harmful impulses and never carries weapons of any kind. He has no desires except the basic instincts. Is of normal intelligence. Spinal tap showed the spinal fluid to be under greatly increased pressure. 30 c.c. were withdrawn and for a short period of time his headaches stopped. Spinal fluid and blood had negative Wassermanns. Dr. Swope considered this a case of chronic hydrocephalus and thought that by doing a cisternal puncture and injecting air, it could be shown with the x-ray. He thought, however, that the condition was too general and advanced to be alleviated.

The paper of the evening by **Drs. S. A. and F. P. Schuster** entitled "The Climatic Factor in Sinus Infection" was then read by Dr. Frank Schuster. His conclusions were as follows:

1. That favorable climatic conditions can play an important role in the healing process, both in conservatively and radically treated cases, and this has a scientific experimental basis and is borne out by clinical observation.

2. That favorable climatic conditions aid the healing from its general alterative biological effect in building general resistance, its anti-bacterial effect of ultraviolet and drying effect tend to quickly destroy polluted atmosphere and its local action on the mucous membrane, raising the resistance and augmenting ciliary action and drainage.

3. That adequate drainage and aeration must be present. We cannot expect any climate to heal a sinus infection where drainage and aeration are blocked by a deflected septum, polypi, hypertrophied adenoids, tonsils, or abscessed teeth continuing to supply infections and feeding into the sinus.

4. That each case must be an individual study as to the best method to employ in affecting a cure.

5. That we must not fail to appreciate and use other factors such as diet, irrigations, chemicals. Packs and surgery may be necessary before climatic conditions can aid in healing.

6. That climate is only one weight in the scale tending to tip the balance in favor of the healing process, but frequently enough to throw the balance in favor of the patient.

In the discussion that followed, Dr. J. Mott Rawlings stated that he liked to hear stressed the care of the general health of the patient in the treatment of these sinus affections. From personal experience with his own case he knew how important it was.

Dr. Werley agreed with Dr. Rawlings in this and thought that often we might obviate the necessity of calling in a specialist simply by building up the general resistance of the patient.

Dr. Egbert, having been interested in climate for a number of years, was glad to see some mention of it made now. He thought that the wonderful cures ascribed to the different therapeutic lamps by their manufacturers smack of quackery and serve to divert attention from real hygienic measures. Sunlight, rich in both ends of the spectrum, is necessary to proper hygiene. In addition, we must have fresh air unpolluted by smoke or human lungs, —air in motion. A low humidity and no very great variations in temperature changes are essential. All

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of this goes to make up the hygiene of the great outdoors.

Dr. Awe stated that he was associated with Dr. Dean who was the pioneer in the climatic treatment of these cases. Formerly Dr. Dean's treatment was entirely radical but he found out that a large percentage of his cases so treated showed no improvement. This especially with children. Then he started using hygienic measures along with his other treatment and found that his results were very much better. Six years ago he had a so-called "sinusitis diet" which consisted principally of orange juice and cream.

Dr. Schuster, in closing, said that diet as a therapeutic measure was coming to the fore more and more. He stressed the point that we must not swing too far and expect hygiene to cure conditions where there is inadequate drainage, infected teeth, polypi, etc.

The next on the program was a case report by **Dr. J. Mott Rawlings** of a case of tetanus, with recovery. This was a man 42 years of age, who two weeks prior to the onset of symptoms had received a punctured wound of the foot while irrigating. He started sick with fever, malaise, and then general convulsions. The convulsions were clonic in type and occurred every eight minutes. He had become very dehydrated before treatment was instituted. Examination of the feet failed to show the focus of entry. Fluids were forced intravenously, subcutaneously and per rectum and antitetanic serum given every few hours. In all, he received 20,000 units intramuscularly, 95,000 intravenously, and 75,000 intraspinally. He gradually recovered from his tetanus, but developed every complication possible. He developed serum anaphylaxis from which he nearly died and only recovered by prompt and efficient stimulation. He developed a serum meningitis and then a partial paralysis of the muscles of deglutition. In the attempt to feed him with a catheter, a broncho-pneumonia set in. For awhile he had total suppression of urine and then his bowels became temporarily paralyzed, but he finally recovered from all this and was able to return home apparently well.

It now being ten o'clock legal closing time, Dr. Will Rogers made a motion that adjourn and immediately reconvene. Motion seconded and carried.

The application of Dr. Chester D. Awe was read and he was unanimously accepted as a member.

Under unfinished business, Dr. Waite reported, stating that he had written and telegraphed the other members of the Executive Committee of the Medical and Surgical Association in regard to the kind of program they wished to put on at the next annual meeting to be held here in November. The Albuquerque member wanted the same kind of meeting we held here two years ago and the member from Phoenix did not. So he suggested that this society pass the deciding vote. On motion by Dr. Cummins, the society favored a meeting similar to the one of two yeras ago—that is one in which distinguished men in the profession from all over the country be invited to participate in the program.

MASONIC HOSPITAL (El Paso) STAFF MEETING

February 13, 1930

On Feb. 13, the staff of the Masonic Hospital, El Paso, Texas, held its regular meeting, three cases of Embolism, from the current files being used as basis of discussion.

Case I. By DR. HARRY LEIGH: The patient was a primipara, 38 years old, pelvis about the average. Patient had small pox at the age of five, typhoid at 16. Has chronic sinusitis and hay fever. During pregnancy she became decidedly overweight and had been inclined to overweight for some years. She went into labor, Jan. 14, and it was about two days before she finally delivered, occiput posterior. She had sluggish pains, very little physical endurance, dilated slowly and had been given a good deal of rest. At no time did she really work with her pains. At the end of 48 hours she was completely exhausted, the cervix not dilated. Her pulse had gone up. The cervix was then manually dilated, medium forceps applied and in six minutes under ethylene anesthesia the child was delivered. There was a slight perineal laceration which was repaired. The cord was about 3 m.m. thick, and the child's heart stopped immediately after the cord was clamped, and was of course stillborn.

On the fourth day her temperature suddenly went to 102.8, blood count was 10,000 and hemoglobin found to be 60. An acute pharyngitis was noted. On the 19th she developed pain in the chest, decompensation was noted, and it was thought pneumonia was developing. She was given digitalis until she become digitalized and the pneumonia apparently cleared up. The patient had a slight stitch infection at the site of one stitch, which occasioned very little trouble and was soon entirely well. At no time did she have any pelvic tenderness.

On the 24th, Dr. Duncan was called in consultation; his opinion follows:

"Patient complaining of difficult breathing. Respiration has a tendency to be sighing but is not hurried. There is no cyanosis. Evident anemia. Chest: left side, expansion less; tympany over base behind on left. There is an area of bronchial breathing in the left interscapular; moderate number of fine moist rales over the left lower and many crepitant rales over the left lower. The heart is not enlarged. No murmurs heard but there is gallop rhythm. Pulse 144, small volume and low tension. Impression: The respiratory distress is remarkably variable and not due to pain. The signs of circulatory weakness are out of all proportion to the extent of lung involvement or toxemia. Pulse was 150 on the second day of fever. The extensive lung moisture suggestive of edema of circulatory failure. I am more inclined to think there has been a pulmonary embolism than pneumonia, but leave the question open for the present. Would suggest increase in digitalis."

Notes on the progress record the following day state that gallop rhythm is present, pulse 124, no change in consolidation in left lung, but less moisture, condition better. This condition was about the same for the next three days, patient running a septic temperature. On the 30th the patient developed severe pain in the epigastrium, aggravated by deep respiration. Some pain in the lower sternal region on breathing only. This not accounted for on physical examination, nor is the high fever. Heart again began gallop rhythm. Abdomen soft, not distended, pelvis clear. On the 31st the progress note reads "No pain, lungs unchanged, pulse 120, good quality. Heart rhythm normal. Cause of fever still undertermined. Urine specimen shows moderate amount of pus." On Feb. 1, temperature came down, otherwise no change. Feb. 2nd, there was soreness over the precordium on deep respiration. To and fro pericardial friction at base of heart, (acute pericarditis?) Pulse 120, gallop present. Slight tenderness over hypogastrium. Pericardial friction rub almost disappeared, marked tenderness in low abdomen which appears to be inflammatory. On Feb. 5 patient gradually getting worse; had hard chill, temp. 104, pulse 140 resp. 44, abdomen more distended, very tender. Pain in left side similar to

pleurisy, heart slightly more rapid, respiration getting faster. Pantapon (grs. ⅓) given for relief of pain. Distention high in the abdomen increased, duodenal tube used with slight beneficial result. Patient expired Feb. 7.

Question arose during various consultations as to whether patient had splenic infarct, accounting for the pain in the upper abdomen. An interesting feature of this case was that about the time the patient developed pericarditis, she also had pyelitis. Another was the fact that the cord never developed properly. The vessels were so small that a needle could scarcely be inserted in the lumen.

The lesson to be learned in these cases, is to look out for patients with chronic hay fever, and sinusitis. Myocarditis in this case was very rapid following the onset of acute throat infection." (Dr. Leigh).

Case 2. Pulmonary embolism, patient of DR. F. P. MILLER. The patient was a strong, well developed man, age 38, who had lived for some years in Mexico. Family history negative except that his mother died at 50 of heart disease, type not known to the family.

On January first, the patient noticed a small pimple just inside the right nostril. His wife opened it with a sterilized needle and a little serosanguinous fluid escaped, but no core or pus. He had no fever, but suffered considerable pain, out of proportion he thought to the size of the pimple. His head ached, and the next morning he went to Dr. Miller's office. He was told to let his nose alone, not to squeeze or attempt to open the pimple, but on insistence of the patient was finally allowed to put a flax seed poultice to the nostril, and keep this hot by the use of a hot water bottle. The patient went home, took some aspirin, went to bed in order to keep the poultice in place. His face became swollen in a few hours, and he complained that even his teeth felt sore and hurt him. About 11 p. m. the same night he began to suffer extreme pain in the left arm and across the chest, especially in the region of the heart. About midnight he said his head felt as if it would burst. He seemed unable to get his breath, had to breathe with his mouth open, and respiration was painful.

Past History: Had diphtheria in childhood, and some malaria since living in Tampico. He is subject to severe colds, and has some stoppage in his nasal passages, from which he has suffered for the last few years. When in this climate he complains of his nose being dry and having some difficulty in breathing. Adenoids and tonsils have been removed. His teeth have recently been gone over and are in good repair. Bowels are regular, and he has no urinary disturbance. His general health is good. He has no children.

Dr. Awe saw the patient before hospitalization, and the following is his record of the beginning of the case at 11 p. m. of the night above mentioned. At 11 p. m. last night the patient noted slight distress across the back and down the left forearm. He thought that the latter was due to holding his arm in a cramped position (keeping the hot water bag in position). At 2 a. m. he began to suffer across the back and at 4 a. m. developed intense pain in the precordial region which cut like a "ma-

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chete" every time he breathed or coughed. He was unable to lie down and had to sit upright in a chair.

At 7:45 when Drs. Miller and Awe first saw him he was extremely pale, temperature 95.8, pulse 84 and of poor quality. The heart was enlarged one finger-breadth to the left of the nipple line. Sounds clear and regular. Lungs were clear. Nitroglycerin given without effect. Papaine (drams 1) given at 5:30, morphine (grs. ¼) at 8:45 and papaine again shortly after entering the hospital. None of these gave him relief. Blood pressure 112/80. Abdomen negative. After the hypodermic of morphine he stated that his left arm was numb for 15 or 20 minutes. Temperature just before entering the hospital 97. Wassermann negative; sputum negative; blood culture sterile. The diagnosis seemed to be either coronary infarction or acute pericarditis.

Dr. Werley was called in consultation and felt that infarction was the most probable diagnosis.

The first thing to emphasize in this case was the severe shock this patient was in. Temperature 95.8, respiration not increased, complaining of numbness in the left arm. The pain did not seem to have any special reference to breathing. The attack began at 4 a.m.

Five times that afternoon his chest was gone over, finding only slight suppression of breath sounds in left chest, no change to percussion note. X-rays taken on the 6th showed the right lung clear except for elongated thickened hilus; the heart shadow normal in outline; the left lower lobe infiltrated with both discrete and confluent type of lobular consolidation. The picture of the 5th, shows more involvement than the one of the fourth. The pleura is thickened over the left lower lobe and the diaphragm outline is not apparent. (Dr. George Turner). Hemoglobin 90, leucocytes 18,650, polys 91. Catheterized, specimen negative.

The Progress Notes of that date state that there was evidence of definite consolidation of the left lower lobe with dulness, tubular breathing and increased breath sounds. Fine rales on quiet breathing over the left lower lobe and moist rales over the right lower lobe. Cyanosis of lips and finger nails. The oxygen tent was placed in position and three liters per minute of oxygen given. The oxygen was discontinued on the 10th.

On the 11th, examination showed the left base to upper scapula dull on percussion, fine moist rales heard in the upper third of chest. Increase in transmission of voice sounds with bronchial breathing. Right: clear on percussion on anterior surface with slight dulness on posterior surface at base; a few fine moist rales heard in base. General condition good. No cyanosis after oxygen was discontinued. Very little cough, no expectoration. No pain on deep breathing. Heart sounds faint. Jan. 13, entire left lung dull, right is resonant, breath sounds are tubular, many rales at left base; few fine crackles at right base; heart sounds clear, distinct and regular. On the 24th: an area of dulness from the 6th to the 10th spines, breath sounds well heard, tubular, almost cavernous in quality, moist rales heard over this area. Patient allowed to go home in ambulance. Shortly after going home patient developed an empyema, pus was aspirated and the patient returned to the hospital for rib resection and drainage. Condition now is good.

Case 3 by DR. J. H. GAMBRELL, was that of a man 50 years old, brought into the hospital by ambulance after a severe injury sustained in an automobile accident. When he entered the hospital he was in a semi-conscious condition. Numerous abrasions and lacerations, but the main injury was to the right leg. The bones protruded from

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the flesh about the knee, and there was a puncture wound in the middle of the thigh where the femur had gone through the flesh. The patient was in considerable shock. X-rays revealed linear fracture extending laterally around the head across the right frontal bone. Fracture of the right femur separating the condyles from the bone shaft and from each other. The fracture was compound and comminuted. The patient was in too bad condition to attempt to set the fractures, and a metal long leg splint was applied, awaiting sufficient recovery to permit surgical treatment of the fractures.

The patient was apparently rational at times, although always somewhat sluggish mentally and we did not know how much of this was due to injury and how much of it was normal with him.

The third day he was taken to the surgery and an open reduction done, the leg put in plaster cast, with windows over the infected areas. The patient was a powerful man, and would suddenly decide to get out of bed, and this he succeeded in doing even before the cast was applied. He was in the hospital 28 days, mental condition varying during this time from apparent normality to delirium. Both the wound at the knee cap and the one in the upper thigh almost in the buttocks were the sites of infection, much pus and necrotic tissue being removed at each dressing. The 27th day after his injury, his condition was better than it had been at all, and a member of his family saw him and decided to go to California and give a report of his case to his family doctor and have the patient sent out there as soon as arrangements could be made. That night about 8:30 the patient had been prepared for the night, and the light turned off. He was in two bed ward, and before the other patient went to sleep he heard considerable movement over in his room mate's bed, and heard what he thought was water dripping on the floor. He put on the light and found the man with the fractured leg attempting to get out of bed, and found that what he had thought was water dripping was blood, pouring from this wound at the knee. The doctor got to him in a few moments, but the patient had had a severe hemorrhage. This was controlled by pressure, the foot of the bed elevated, and hypodermoclysis given. His color returned, the patient was conscious, did not complain of any pain, his pulse picked up and it was thought that he would be all right unless he had another hemorrhage from this wound. Dr. Gambrell remained in the building, a special nurse was again put on the case, and at eleven (about three hours following the hemorrhage) the nurse was counting the pulse, which was rapid but fairly good quality, when suddenly the radial pulse stopped, respiration continued, and shortly afterward the patient expired.

Postmortem revealed an embolus, coronary, evidently of popliteal origin.

Discussion by DR. CUMMINS: These are interesting cases because of their diversity, and it is unfortunate that Dr. Leigh's case did not have an autopsy. The patient being thick, short in build, having chronic sinus infection, anemia, and damaged circulation, she was a fit subject for embolism or infarct following trauma of any sort, and would in all probability have had trouble following any operation. In Dr. Gambrell's case, the extensive infection, delirium, trauma and damage to the blood vessels entitled him to embolus. In my opinion Dr. Miller's case was certainly one of infarct rather than frank pneumonia. The pain in his case was characteristic.

DR. LEIGH during the discussion stated that the only thing against primary embolism in his case was the small amount of pain. He was inclined to think

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the patient had pneumonia, followed by pleurisy, and pericarditis associated with infarction of some sort when the pain became intense.

Dr. Gambrell remarked that he had recently looked over statistics concerning deaths recorded by the Mayo Clinic, and that of their surgical postoperative deaths due to embolus, 80 per cent were pulmonary, 10 per cent cardiac, and 10 per cent of indeterminate or scattered over various parts of the body.

ST. JOSEPH'S HOSPITAL (Phoenix, STAFF MEETING

December—1929.

The regular monthly meeting of the Medical Staff of St. Joseph's Hospital was held in the lecture hall of the Nurse's Home on Monday evening, December 8, 1929.

The minutes of the previous meeting and the Analysis of Hospital Service for the month of November were read. Dr. Willard Smith was voted collectively to be admitted as an active member of the Staff. also Dr. Berger and Dr. Ploussard having completed a year were admitted to the active staff.

The chairman, Dr. E. Payne Palmer, announced this to be the annual meeting for the election of officers for the coming year and nominated Dr. Brockway as his successor for the ensuing year. This was seconded and put to vote by ayes and nays and Dr. Brockway was unanimously elected.

The chairman then called for nominations for office of Secretary. Dr. Brockway nominated Dr. Greer who was elected by a unanimous vote.

The advisory committee composed of Drs. Milloy, Goodrich and Schwartz automatically became the Executive Committee and ballots were distributed for the election of the advisory committee and Drs. Palmer, Bloomhardt and Jordan were elected.

Dr. Palmer resigned the chair to Dr. Greer, who was in charge of the following program.

DR. A. C. KINGSLEY presented Case No. 18071. The chief complaint was chills and fever, periodic.

C. M., born and raised in Mexico where he lived until he was about twenty years of age. He had the ordinary diseases of childhood. No serious injury. For several years before leaving Mexico he suffered from malaria. Had very severe chills and fever at more or less regular intervals during each year. Would take quinine with some relief. At these times he suffered with intense backache, severe chills followed by fever. He left Mexico and went to Idaho about sixteen years ago. Never had any very pronounced symptoms of malaria since.

P. H. About one month ago he suffered an attack of "hives." Broke out with large blotches all over the body. Thinks this followed eating some meat which perhaps was not in good condition. He consulted a physician at Blythe, California, who looked him over rather hurriedly and made no diagnosis. Directed that his bowels be regulated and gave him some medicine. Since this time has not felt particularly good. No headaches, nausea or vomiting. No diarrhea. No nose bleed.

November 10th he consulted me at my office. Complained of a dull, heavy sensation along the costal margin in midaxillary line on the left side. This would become worse following his riding a road scraper. He would be relieved as soon as he would reach home at night and lie down. Does not think he had any temperature up to this time. While he knows of no definite injury, he thinks that the riding of the road scraper has probably caused and aggravated his condition.

Examination reveals a well nourished man in apparently good physical condition. Head negative. Teeth in fair condition. Tonsils negative. No adenopathy. Lungs entirely negative. Heart entirely negative for murmurs, no enlargement; pulse 74, full and regular, however, not particularly strong. Temperature 99 at 12 noon. Apex beat in the 6th interspace. Abdomen is flat, soft and no rigidity or pain on deep pressure. However, pressure along the lower costal margin on the left side rather aggravates his sensation of fullness or discomfort in this region. Neurological examination entirely negative.

On November 13, I was called to his house in the evening. About 5 a. m. of the 12th he had a very severe chill lasting about a half hour, followed by a temperature and some sweating. He felt somewhat poorly all day, however he was up and about. The following night he slept well but felt perhaps a trifle nervous. About 5 p. m. on the 13th he had another severe chill. At this time I was called.

General physical examination was again entirely negative except the tenderness which was perhaps more marked. There was more discomfort along the left costal margin. Temperature 104 and pulse 110. He was not feeling badly and said he was perfectly able to get up. There was some discomfort and some tenderness over the entire abdomen. He was quite badly constipated. Bowels were opened and quinine administered.

Nov. 14 he was seen again by me on this date. Was still feeling fine, although his temperature and pulse were the same as on the previous day. The tenderness in the abdomen had disappeared following the cathartic. Nov. 15, condition was the same. Pulse and temperature the same. No improvement under moderate doses of quinine. Against orders he had been up and shaved. He said he felt perfectly well. About daylight of the morning of the 15th he had another chill. Nov. 16th pulse and temperature about the same. Still no physical findings. No marked abdomen tenderness. Not being satisfied as to his condition, I asked for consultation. They selected Dr. E. Payne Palmer, who saw him in consultation that evening. Dr. Palmer's only suggestion was that the doses of quinine were probably not sufficient. Nov. 17, under large doses of quinine no improvement. Nov. 18, while there is no marked change in his condition, there is a suspicion of moisture in the lower base and some bronchial breathing over his entire chest. He was transferred to the hospital thinking that he was developing pneumonia.

Pulse became more rapid. Breathing was more rapid, but the condition in the chest had improved. Temperature remained about the same. There had been on the 18th beginning diarrhea which was continuing. This responded readily to bismuth mixture. However, he suddenly collapsed about midnight and was in a very critical condition during the balance of the night. Nov. 20, delirium of a low muttering type developed. He was restless from abdominal distension. Bowels not moving. All actions were under control. Nov. 21, there seemed to be some slight improvement. Had a slight nose bleed. There was some blood expelled from the mouth which was taken at first for bloody expectoration but this probably came from the nose. During the day he became more irrational. The distention increased. About 5 o'clock the pulse became very irregular and weak. He died at about 10 p. m. November 21.

Autopsy report by DR. MILLS:

Permission was obtained to open the abdomen only. The stomach and the intestines were greatly distended with gas. Inspection of the stomach and the upper small intestine showed no gross changes. The lower ileum showed patches of hyperemia and

marked induration. In some of these areas there was beginning necrosis and recent exudate present. On incision of the intestine these areas showed large ulcers with indurated margins and necrotic base. There were large numbers of these ulcers in the lower third of the ileum. No other definite pathology was found. In the intestinal tract the spleen was enlarged, soft, hyperemic. Liver showed no definite change, normal. The kidneys showed moderate degrees of passive hyperema.

Sections of wall of the ileum including an area of ulceration shows marked necrosis and inflammatory infiltration extending to the peritoneal surface out, recent exudate on peritoneal surface. Sections of lymph nodes show defuse inflammatory changes without definite necrosis.

Diagnosis: Typhoid, with extensive ulceration of ileum.

Discussion by DR. E. PAYNE PALMER:

The physical examination of this patient, when first seen in consultation with Dr. Kingsley, Nov. 16 gave some tenderness on deep pressure in the right iliac region, without muscle rigidity. The temperature was 105, the pulse rate 120 and respiration 22. Because of the previous malarial infection and the absence of definite physical findings, a tentative diagnosis of malaria was made and the continued administration of quinine in large doses advised.

When seen again on the 18th at seven p. m., there were crepitant rales in the left lung with faint bronchial breathing. Otherwise the physical findings were the same as before. Every physical finding which goes to make up a classical picture of typhoid was absent. The general appearance was not that of a patient with typhoid. There was an absence of the moderate diffuse redness of the face in the early period. There was an absence of the frequently observed peculiar "typhoid odor." The tongue was not characteristic, i. e., dry and coated except on a triangular area at the tip and at the edges. The spleen was not palpable, there was no bronchitis, there was an abscess of the characteristic pea soup stool, there was no roseola, no meteorism, there was an absence of a relatively slow pulse and leucopenia with lymphocytosis, a negative bacteriological blood, an absence of the Widal agglutination. So how could a diagnosis of typhoid fever be made? What else could his condition be due to? Central lobar pneumonia was ruled out by x-ray, malaria was eliminated by repeated blood examinations. Amebic infections were ruled out by examinations of the stools. Nephritis and pyelitis could be eliminated because of the urinary findings. Acute miliary tuberculosis was ruled out by x-ray. In acute general sepsis the pulse is very rapid and out of proportion to the height of the temperature. This condition did not exist and there was a negative blood culture. In acute bacterial endocarditis, the pulse is usually very rapid and weak with cardiac murmurs and there is a leukocytosis with predominating polymorphonuclear cells and a marked diminution of the lymphocytes and almost entire disappearance of the eosinophiles. Acute leukemia had to be thought of and ruled out, as it frequently bears a striking resemblance to sepsis. The diagnoss does not depend on the number but on the form of the leukocytes. Malta fever by the absence of the characteristic undulating type of the temperature and of the profuse perspiration. Acute appendicitis, acute cholecystitis and acute pancreatitis could be ruled out by the absence of acute abdominal symptoms. An osteomyelitis may give no characteristic local signs but the temperature is remittent and there is a leukocytosis. The bones were carefully examined and no tenderness on pressure or swelling over the periosteum could be detected. Acute arthritis was sought for but no painful or tender joints could be found.

DR. R. B. RANEY presented a discussion of brain tumor, based on Case No. 18027, with autopsy findings:

In opening a discussion on brain tumors, I will try first to bring out what seems to be the reason for a failure in early diagnosis of practically every type of central nerve system pathology.

As we all know, the brain is anatomically isolated from the usual methods of physical examination of other parts of the body by a bony vault. Second, the extreme complexity of anatomical structure. Third, the lack of familiarity with the various syndromes, which no doubt are overlooked due to the rarity of occurrence and the grave prognosis in their presence. Since the general symptoms, if properly interpreted, point very directly towards brain dsease, they may without close study be referred to the gastro-intestinal tract or other remote parts of the body. So taking these glaring facts into consideration, it isn't any wonder that lesions of the central nerve system are not recognized until they have become far advanced. In almost every case that has come under my observation they have all been treated from weeks to months and even years for various and sundry ailments ranging from constipation to migraine. Now I do not wish to state here that all cases should be recognized early, but I will say that a great majority of them should be. This is especially true of the brain tumor. While it is common knowledge that occasionally a tumor will exist for years without much discomfort to the patient, it certainly does not prove the rule.

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Roughly, tumors of the brain may be divided into three clinical types; the true tumors, the infectious tumors, and the vascular type.

Among the true tumors, the most common types encountered, especially in adults, are the gliomata. They occur most frequently in the anterior fossa but may occur in any location, springing as a rule from the ependymal layers. They grow by extension are not well encapsulated and therefore cannot be removed adequately by surgical interference as some of the encapsulated types. The prognosis in this type of tumor is especially grave. The sarcomata are not infrequent, occur most commonly in the adult, malignant by nature and spring from the connective tissue structures. They are strictly surgical cases, but like all of the sarcomata, they metastasize quite readily. Endotheliomata are quite frequently encountered; they grow very slowly, the eymptoms developing over a period of years. They are related somewhat histologically to the carcinomata but are relatively benign, encapsulated, and if within surgical reach, comparatively easily removed, with a fairly good prognosis. They may occur in any location, but are frequently encountered in the posterior fossa about the cerebello-pontine angle. The fibromata are not infrequently encountered. They are usually outgrowths from the cranial nerves, the trigeminal nerve being a frequent site, within the realm of the cerebello-pontine angle and when they are within surgical reach, the prognosis is very good as compared to other types just described. Lipoma, chondroma, osteoma, chordoma, etc., are extreme rarities and do not warrant discussion at this time.

Among the infectious tumors, tuberculosis and syphilis are the most prominent types. The tuberculoma is probably the most common in occurrence and is particularly common among the tumors of children. It may be solitary, but frequently is multiple, often attaining immense dimensions before being recognized. The type has been successfully removed but is not a case for the best prognosis. The syphiloma is rather frequent in occurrence. The location is usually about the base of the brain. Slowly growing, occurring all the way from one to thirty years after the initial specific infection and probably treated best by the antileutic regime. Actinomycosis has been encountered but is very rare.

Among the most frequently encountered vascular tumors of course, is the aneurysm. It is frequently leutic in origin, but not of necessity. It has a predilection for the basilar artery but it may occur in any location. The prognosis is ultimately grave and no satisfactory treatment exists to the present day.

The general symptomatology as a rule is quite characteristic. The four cardinal pathognomonic symptoms are headache, vertigo, choked disc and projectile vomiting. As a rule the general symptoms arise early and considerable time before the appearance of the localizing symptoms. Headache is probably the first symptom encountered and is present in a great majority of the cases and is very constant. It may be of the fronto-occipital type or definitely localized. However, the location of the headache has no bearing on the location of the tumorous growth. It may be a dull background of pain with excruciating exacerbation which, as a rule, terminates in a crisis with nausea and vomiting and intense dizziness. During these attacks, maniacal outbreaks are not infrequent. If the headache is definitely localized on one side or the other and accompanied by tenderness and dullness to percussion, along with sufficient x-ray evidence, it is a very valuable localizing sign. However, as mentioned before, too much stress should not be laid on the location of the pain with reference to the tumor. Vomiting either with or without the presence of nausea is usually encountered at some stage of the disease. Frequently it is a late symptom, especially if the tumor happens to be located in the anterior fossa. However, if the growth happens to be in the posterior fossa, vomiting may be a very distressful early symptom, causing in some cases even extreme emaciation. Chocked disc, optic atrophy and vertigo are very early symptoms in tumors in the posterior fossa. The choked disc being due to the pressure of fluid between the optic nerve and its vaginal sheath, while the dizziness is due to the disturbance of the sinergic control mediated through the cerebellum and if allowed to continue over even short periods of time, irreparable damage may be done. These symptoms are all due to increased pressure within the cranial vault. They may be either general or confined to a localized hydrocephalus, either internal or external, depending entirely upon the growth. Mental changes are almost invariably present but are not necessarily pathognomomic. They tend to progress with the increase in the pressure or the extension of the growth and vary from hallucinations, aphasias and dementia to maniacal dilirium, but the general tendency is to that of dementia. The cardio-respiratory signs are due to an action brought about either by pressure or extension of the growth on the cardio-respiratory centers, manifesting themselves as a rule by periods bradycardia, tachycardia and Cheyne-Stokes breathing. The optic nerve signs are very favorable from a localizing standpoint as well as of a diagnostic aid. A marked choked disc is suggestive of posterior fossa involvement, while

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a visual aphasia would represent that of the posterior lobe of the cerebrum. To go into detail regarding the localizing signs is entirely too large a field to be covered at this time, so I will confine the rest of this paper to a few of the points in the case just described.

Roughly, the salient features in the history are as follows: Frontal occipital headaches of a year and one-half duration with crises to which the dizziness was very pronounced and vomiting occurred frequently. During the last six months of the illness the onset of change in personality, periods of coma progressing to a mild degree of dementia. Among the outstanding points in the physical examination are as follows: The persisting bradycardia, left-sided weakness of the body with twitchings, the great increase in the spinal fluid pressure and cell count. While the cell count was extremely high, one would expect as much in the fact of the inflammatory processes that would be brought about by extreme pressure, and the final development of profound coma with death. Evidently this case is without doubt a rapidly growing tumor which more than likely occupies the right lobe of the cerebrum. While localizing signs have not been marked out, in the absence of decompression, they would be of very little value. The growth is evidently far advanced and more than likely inoperable to say the least.

Autopsy Report by DR. MILLS: The body is that of a white female, apparently 50 years of age, moderately well nourished.

Cranial vault was opened. The dura was somewhat thickened and adherent to the pia along the lateral margin of the superior sagittal sinus just anterior to the fissure of Rolando. The brain was removed including the entire medulla oblongata. External examination showed marked softening of the right temporo-sphenoidal lobe with flattening of the convolutions and thickening of the pia mater. There was a small lobe like hard protrusion, of apparently brain substance, simulating a growth on the anterior internal portion of the right temporospheniodal lobe, extending inward towards the optic chiasma. Sections into the ventricle disclosed on the right side marked granular growth infiltrating into the corpus collosum and medially into and on the septum pellucidum. The general characteristics of this growth as far as can be determined grossly seemed to be of the nature of an infectious granuloma or glioma.

Sections into lateral ventricle shows lateral wall of both ventricles broken down by granular, soft, reddish, brown area extending irregularly into structure of the cerebrum. In one portion of the right ventricle there is quite a globular mass. Greater portion of this is very soft, friable and dark yellowish color. Microscopic sections showed fairly definite outline of this brownish mass from the more normal cerebral structure. Superficial portion was broken down, apparently due to lack of nourishment rather than inflammatory changes. Portions near the normal cerebral structure showed closely massed brown spindle cells with multiple fibril like projections, fairly vascular without definite fibrous stroma. This is evidently a glioma of a diffuse type infiltrating into the walls of both lateral ventricles. The origin is probably in the ependyma.

RODENT ULCER. Richard L. Sutton, Jr., M. D., Kansas City, Mo., Jour. of the Mo. State Med. Assn., Vol XXVII, No. 3, March, 1930. p. 103.

The term rodent is not scientifically used; it is frequently used either for basal cell or prickle cell carcinoma of the skin, altho there is a marked clinical and histopathological difference in these two growths. After a thorough discussion of the various types of lesions which are sometimes called "rodent ulcer," and also a discussion of the various methods of treatment, the author concludes,—that the term, "rodent ulcer" should be discarded, and the correct term based on histopathology should substituted. Treatment should consist in the extinction of the neplastic cells in the manner which will give the best cosmetic results. Irradiation is the method of choice, and as between x-ray and radium, the latter is preferable, on account of the accuracy with which the dose may be applied.

MALIGNANCY OF THE ORAL CAVITY. C. M. Hamilton, M. D., Nashville, Tenn. Jour. of the Tenn. State Med Assn., Vol. XXIII, No. 1, March, 1930, p. 79.

Cancer of the mouth is curable, but to obtain the best results it is necessary to start treament early. Palliation and insufficient treatment are worse than no treatment. Proper combination of methods offers the most success. Every case presents the double problem of the local lesion and the lymph drainage areas. The local lesion can be removed by excision, cauterization, electrocoagulation or radiation. The dual procedure of electrocoagulation and radiation is more effective in destroying the local lesion than either method singly. Treatment of the lymph glands is more important than treatment of local lesion. The result in unselected cases varies from 15 to 60 per cent with different authorities. Cancer of the tongue and floor of the mouth are the most unfavorable, while epitheliomas of the alveolar ridge and hard palate offer better prognoses.

CIN-EX CAMERA STUDIES OF THE THYMUS IN INFANTS AND CHILDREN. C. K. Halsey, M. D., and R. Q. DeTomasi, M. D., Detroit, Mich. Jour. Mich. State Med. Soc., Jan., 1930, Vol. XXIX, No. 1, p. 25.

By means of the Cin-Ex camera of Jarre, it is possible to make as many as four exposures per second on a roll film, but in the series on the thymus in infants, reported, the average was about five exposures in two seconds. This method of study has shown that the thymus shadow as shown on one, two or three x-ray films cannot be taken as indicating true enlargement or hypertrophy. By studying a large series of exposures made on 20 or 30 feet of roll film, great differences in the width of the mediastinal shadow will be shown. The enlarged thymus is not as frequent as supposed, and many instances of supposed thymus enlargement will be found to be physiological changes due to respiratory phases. Conclusions drawn from single films showing a wide mediastinal shadow before treatment and a narrow shadow after treatment may be erroneous, and the difference be represented by respiratory phases or the difference between the heart in diastole and in systole.

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